

77 01656

General Plan



City of Indian Wells

ENVIRONMENTAL IMPACT REPORT

January 1974

INSTITUTE OF GOVERNMENTAL
STUDIES LIBRARY

APR 29 1977

UNIVERSITY OF CALIFORNIA



HARRY H. SCHMITZ & ASSOCIATES
Urban & Environmental Planning
Palm Desert, California

GENERAL PLAN
CITY OF INDIAN WELLS

DRAFT
ENVIRONMENTAL IMPACT REPORT

[Indian Wells, City Council]
City planning Indian Wells
Environ. impact studies " "
Conservation " "
Land Utiliz " "

JANUARY 1974

Harry H. Schmitz & Associates
Urban & Environmental Planning Consultants
Palm Desert, California 92260

CITY OF INDIAN WELLS

CITY COUNCIL

Joseph E. Young, Mayor

H. L. Cavanagh, Vice Mayor John R. Clark, Jr.

D. J. Bogardus William Juvonen

PLANNING COMMISSION

Roy Adams, Chairman

J. Bert Easley Norman H. McLain

Ted Hamilton R. O. Spicer

CITY STAFF

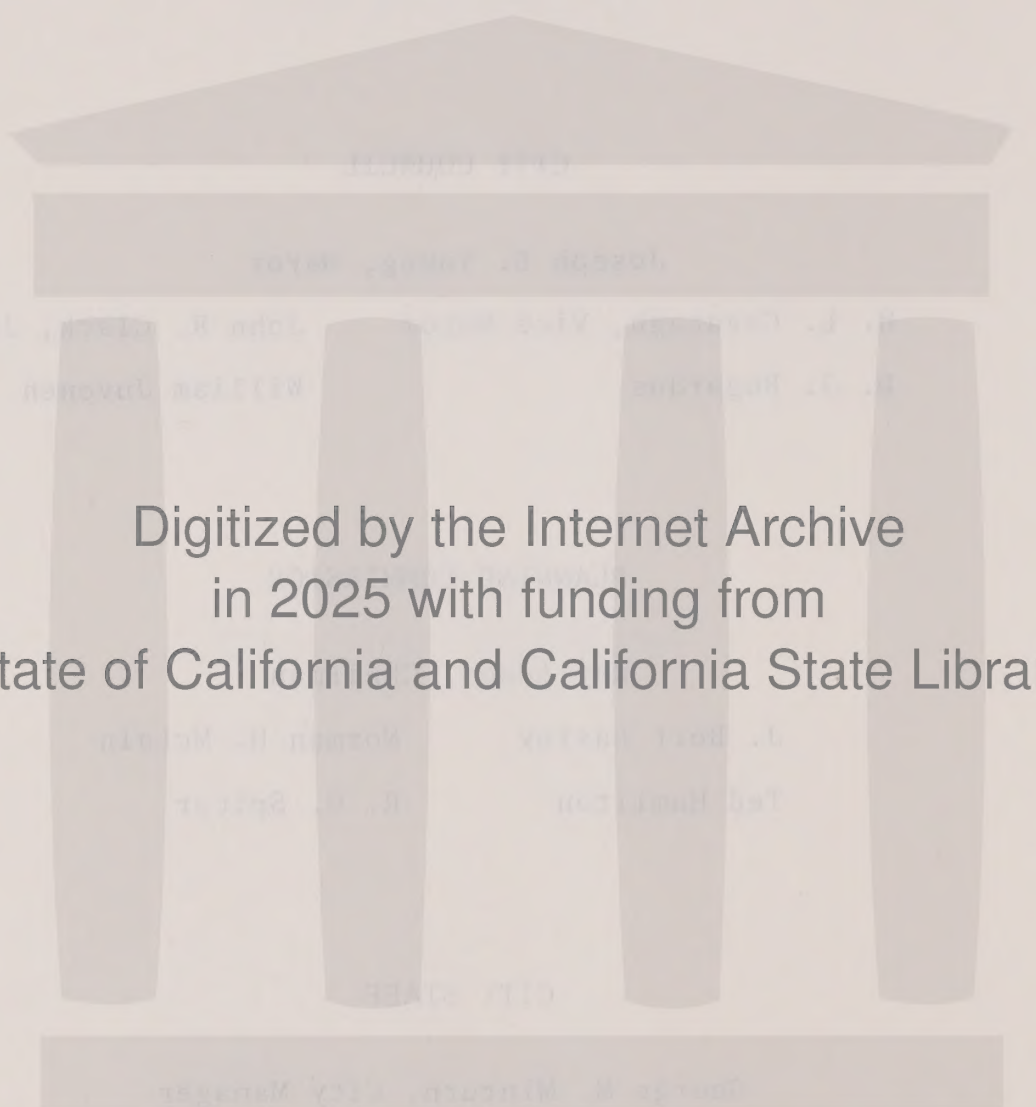
George M. Minturn, City Manager

Melvin Craig, Director of Building & Planning

C. R. Emerson, City Treasurer

David J. Erwin, City Attorney

Jeanne M. Wilson, City Clerk



Digitized by the Internet Archive
in 2025 with funding from
State of California and California State Library

<https://archive.org/details/C101740792>

TABLE OF CONTENTS

INTRODUCTION.....	1
I. DESCRIPTION OF PROPOSED PROJECT.....	2
A. Location and Description.....	2
1. Density and Population.....	2
2. Access and Circulation.....	7
3. Character of Development.....	7
4. Utilities.....	8
B. Regional Location.....	9
C. Objective of Project.....	12
D. Phases and Time Schedules.....	12
E. Costs.....	13
II. ENVIRONMENTAL SETTING AND DEFINITION OF IMPACT AREA.	14
A. Description of the Environment.....	14
1. Physical.....	14
a. Earth Resources.....	14
1) Land Form.....	14
2) Space as a Resource.....	14
3) Soil Characteristics.....	15
4) Mineral Resources and Construction Materials..	15
b. Water Resources.....	15
1) Regional Flow.....	15
2) Regional Groundwater Storage.....	29
3) Groundwater Quality.....	33
4) Local Conditions.....	33
c. Atmospheric Resources.....	37
1) Quality.....	37
2) Climate.....	40

d. Processes.....	47
1) Drainage.....	47
2) Wind Erosion.....	49
3) Earthquake and Faulting.....	50
4) Fire.....	56
2. Biological.....	57
a. Regional Flora.....	57
1) Sand Dunes and Creosote Habitat.....	58
2) Creosote - Palo Verde Habitat.....	58
3) Cholla - Palo Verde Habitat.....	58
4) Rocky Slopes Habitat.....	59
b. Regional Fauna.....	59
1) Mammals.....	59
2) Amphibians and Reptiles.....	60
3) Birds.....	60
4) Insects and Arthropods.....	60
c. Local Wildlife.....	61
3. Man Made.....	72
a. History and Archaeology.....	72
1) Salton Basin.....	73
2) Cultural Adjustments.....	81
3) Local Aspects.....	82
b. Population.....	84
c. Land Use.....	86
d. Zoning and Proposed Land Use.....	86
e. Economics.....	87
1) Regional.....	87
2) Local.....	93
f. Transportation Systems.....	98
III. PROBABLE ENVIRONMENTAL IMPACTS.....	101
A. Impact on the Physical Environment.....	101
1. Land Form and Open Space.....	101
2. Groundwater.....	102
3. Air Quality.....	103
4. Climate.....	105

5.	Flooding.....	105
6.	Wind Erosion.....	106
7.	Seismic.....	106
B.	Impact on the Biological Environment.....	107
1.	Flora.....	107
2.	Fauna.....	107
C.	Impact on the Man Made Environment.....	108
1.	Archaeology.....	108
2.	Population.....	109
3.	Land Use Compatibility.....	109
4.	Recreation and Open Space.....	110
5.	Visual.....	110
6.	Transportation.....	111
7.	Public Facilities.....	112
8.	Utilities.....	112
	a. Electric.....	112
	b. Gas.....	113
	c. Water.....	113
	d. Sewage.....	113
9.	Economic.....	114
IV.	SUMMARY OF UNAVOIDABLE ADVERSE EFFECTS.....	116
V.	MITIGATION MEASURES PROPOSED TO MINIMIZE THE IMPACTS	117
VI.	ALTERNATIVES TO THE PROPOSED ACTION.....	119
VII.	COMPARISON OF SHORT AND LONG TERM EFFECTS.....	120
VIII.	IRREVERSIBLE CHANGES AND COMMITMENT OF RESOURCES....	120
IX.	GROWTH INDUCING IMPACT OF THE PROPOSED PROJECT.....	121
X.	ORGANIZATIONS AND PERSONS CONSULTED.....	122
XI.	BIBLIOGRAPHY.....	123
	APPENDIX I.....	126
	APPENDIX II.....	145

LIST OF EXHIBITS

EXHIBIT	TITLE	PAGE
A	U.S.G.S. Palm Desert Quadrangle Map	3
B	Upper Coachella Valley Area Map	4
C	Open Space Element Map	5
D	Indian Wells Zoning Map	6
E ₁	Coachella Valley Region Map	10
E ₂	Southern California Region Map	11
F ₁	Generalized Soil Map	16
F ₂	Soil Capability Chart	17
F ₃	Soil Capability Chart	18
F ₄	Soil Capability Chart	19
F ₅	Soil Capability Chart	20
F ₆	Soil Limitation Rating and Vegetative Groups .	21
F ₇	Allowable Soil Pressures Chart	22
F ₈	Hydrologic Soil Classification	23
G ₁	Groundwater Sub-basins Map	25
G ₂	Groundwater Flow Lines Map	26
G ₃	Water Movement in Upper Valley	27
G ₄	Changes in Water Levels Map	30
G ₅	Water Level Contours Map	31
G ₆	California Aqueduct Annual Entitlements Table.	32
G ₇	Typical Groundwater Quality Table	34
G ₈	Groundwater Quality Map	35
G ₉	Fluoride Concentrations Map	36
H ₁	California Air Basins Map	38
H ₂	Air Pollution Inventory Table	39

H ₃	Emissions Chart	41
H ₄	Emissions Chart	42
H ₅	Emissions Chart	43
H ₆	Air Monitoring Table	44
I ₁	Typical Meteorological Table	46
I ₂	Equal Rainfall Contours Map	48
J	Coachella Valley Wind Erosion Hazard Map	51
K ₁	Geologic Map - Santa Ana Quadrangle	52
K ₂	Epicenter Map	54
L	Wildlife Areas Map	62
M	Salton Basin Map	74
N	Farm and Livestock Production Table	89
O ₁	Coachella Valley Employment Table	90
O ₂	Selected Economic Indicators Table	91
O ₃	Selected Economic Indicators Table	92
P ₁	Indian Wells Financial Data	94
P ₂	Indian Wells Financial Data	95
P ₃	Indian Wells Financial Data	96
P ₄	Indian Wells Financial Data	97
Q ₁	1970 Traffic Flow Map	99
Q ₂	1990 Traffic Flow Map	100

INTRODUCTION

This Draft Environmental Impact Report was prepared by the firm of Harry H. Schmitz & Associates, Palm Desert, California, at the request of the City of Indian Wells. The report was prepared in conformance with the guidelines of the State of California Environmental Quality Act of 1970. The proposed project contemplates total development of the City as it is currently zoned and planned, including the adoption of an Open Space Element and a Conservation Element for the General Plan of the City.

Adoption of the Open Space and Conservation Elements of the General Plan, per se, would not require any physical alteration of the City, nor would it cause direct adverse impacts to the surrounding area. However, it would stipulate land use categories and set policies for future implementation that could have implications regarding land utilization and environmental impacts.

Uses permitted within present City zones are given in Appendix 1. Discussing each use in detail is obviously not practical; however, the probable overall average effect of the total development can be examined.

With a project of this nature, several basic assumptions are made: (1) That the character and life style of the City's population will not significantly alter, (2) that no major recession, inflation, or war will occur, (3) that the rate of growth will be controlled by the City, but that growth will be allowed.

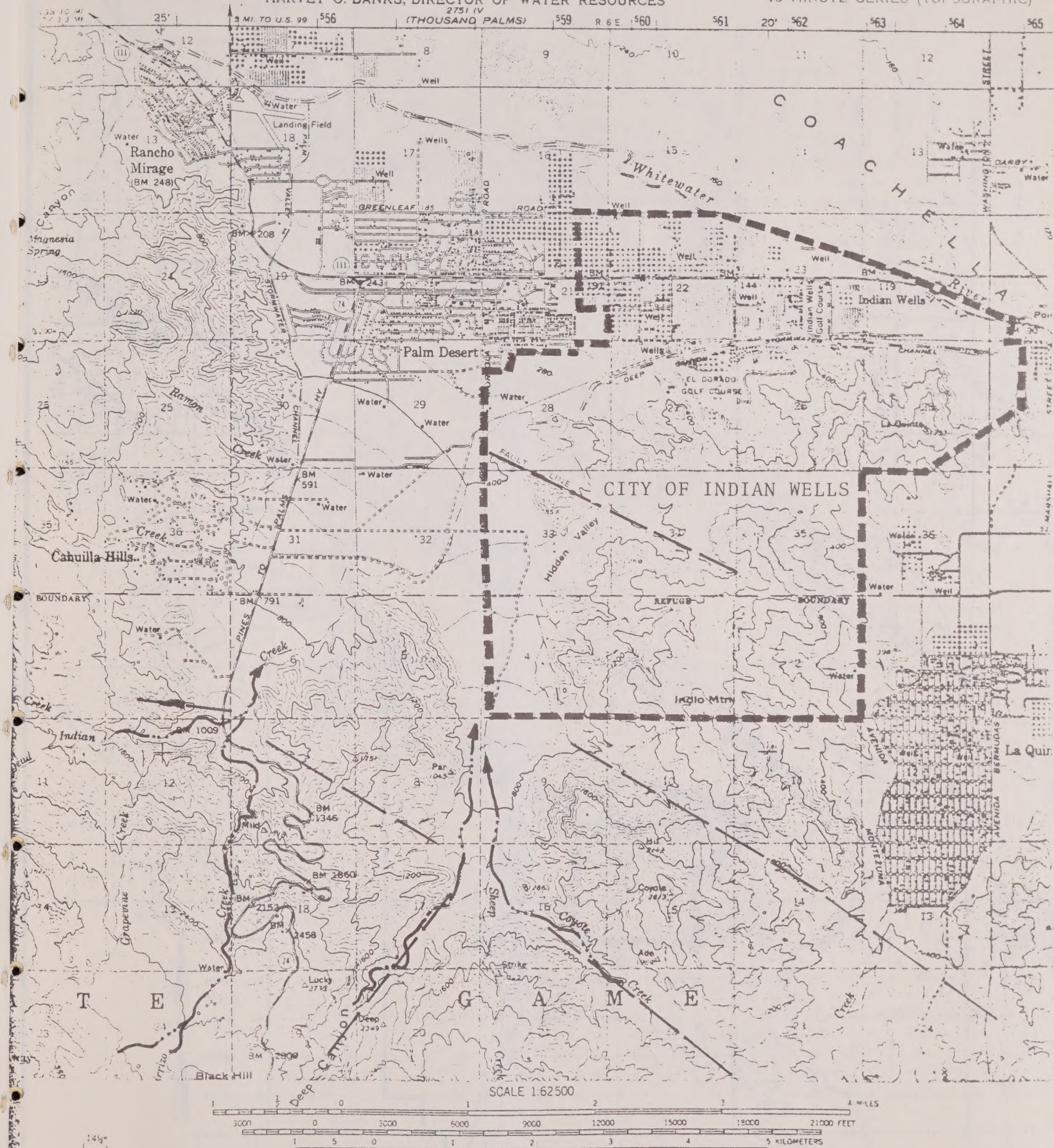
I. DESCRIPTION OF THE PROPOSED PROJECT

A. Location and Description

The project includes the entire City of Indian Wells and contains approximately 8,000 acres, of which 1,700 acres are potentially developable. The City is located along both sides of Highway 111 in the "Cove Communities" area of the Upper Coachella Valley, Riverside County, California. (See EXHIBITS A and B). It is contemplated that the City will adopt the Open Space and Conservation Elements of the General Plan and allow total development of "urban", "designed open space", "erosion plain", and "agriculture" lands as designated in the General Plan and in accordance with current zoning. (See EXHIBITS C and D). By reference, the entire text of the Open Space and Conservation Elements is made a part of this Draft Environmental Impact Report.

1. Density and Population

Current zoning and General Plan policies allow an average of seven dwelling units per gross acre (7 D.U./Ac.) on the 140 acres of Highway 111 frontage properties. At two persons per D.U., this would accomodate about two thousand persons when fully developed. The remaining 1,560 acres could average three D.U. per acre. At 2.61 persons per D.U. (1969 Special Census factor) an additional 12,200 persons are possible. Thus, the probable overall average



SCALE 1:62500
CONTOUR INTERVAL 80 FEET
DOTTED LINES REPRESENT 40-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

R. 4 E.

SAN BERNARDINO COUNTY LINE

R. 6 E.

RIVERSIDE COUNTY LINE

T. 2 S.

R. 7 E.

R. 4 E.

AVENUE 52

AVENUE 54

AVENUE 56

AVENUE 58

AVENUE 60

AVENUE 62

AVENUE 64

AVENUE 66

AVENUE 68

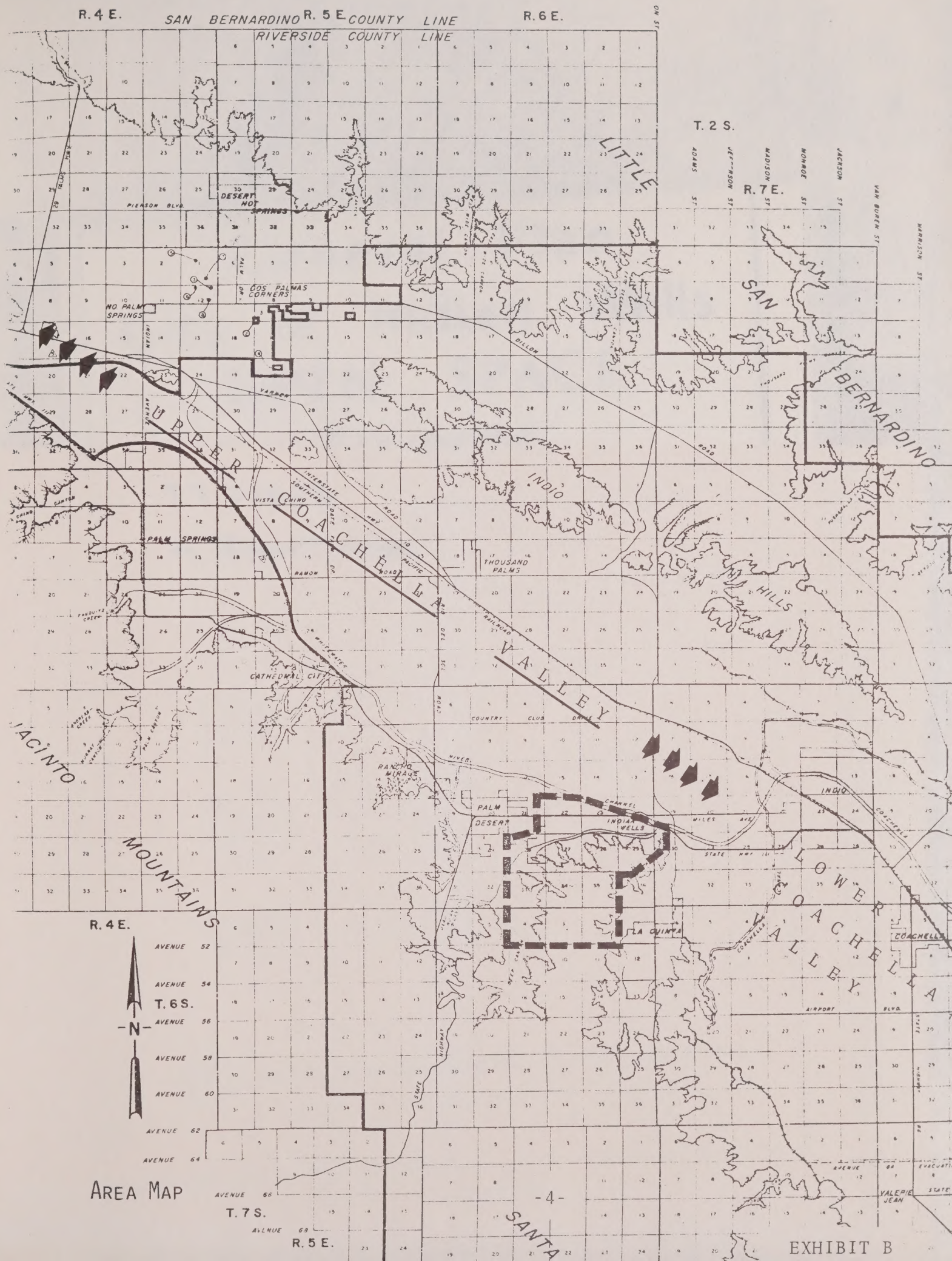
AREA MAP

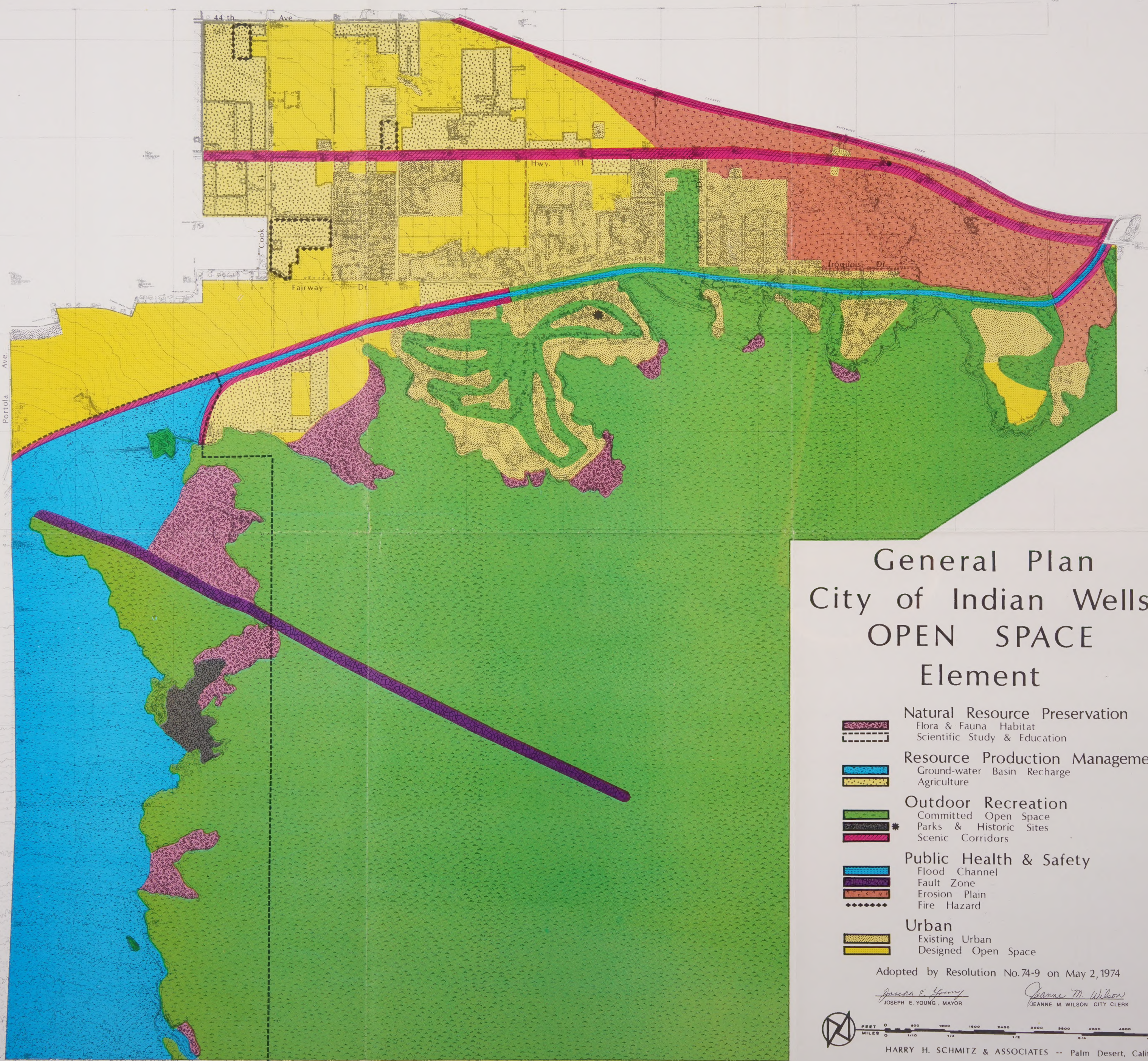
T. 7 S.

R. 5 E.

- 4 -

EXHIBIT B





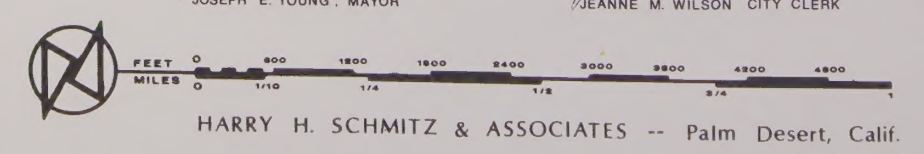
General Plan City of Indian Wells OPEN SPACE Element

- Natural Resource Preservation**
 - Flora & Fauna Habitat
 - Scientific Study & Education
- Resource Production Management**
 - Ground-water Basin Recharge
 - Agriculture
- Outdoor Recreation**
 - Committed Open Space
 - Parks & Historic Sites
 - Scenic Corridors
- Public Health & Safety**
 - Flood Channel
 - Fault Zone
 - Erosion Plain
 - Fire Hazard
- Urban**
 - Existing Urban
 - Designed Open Space

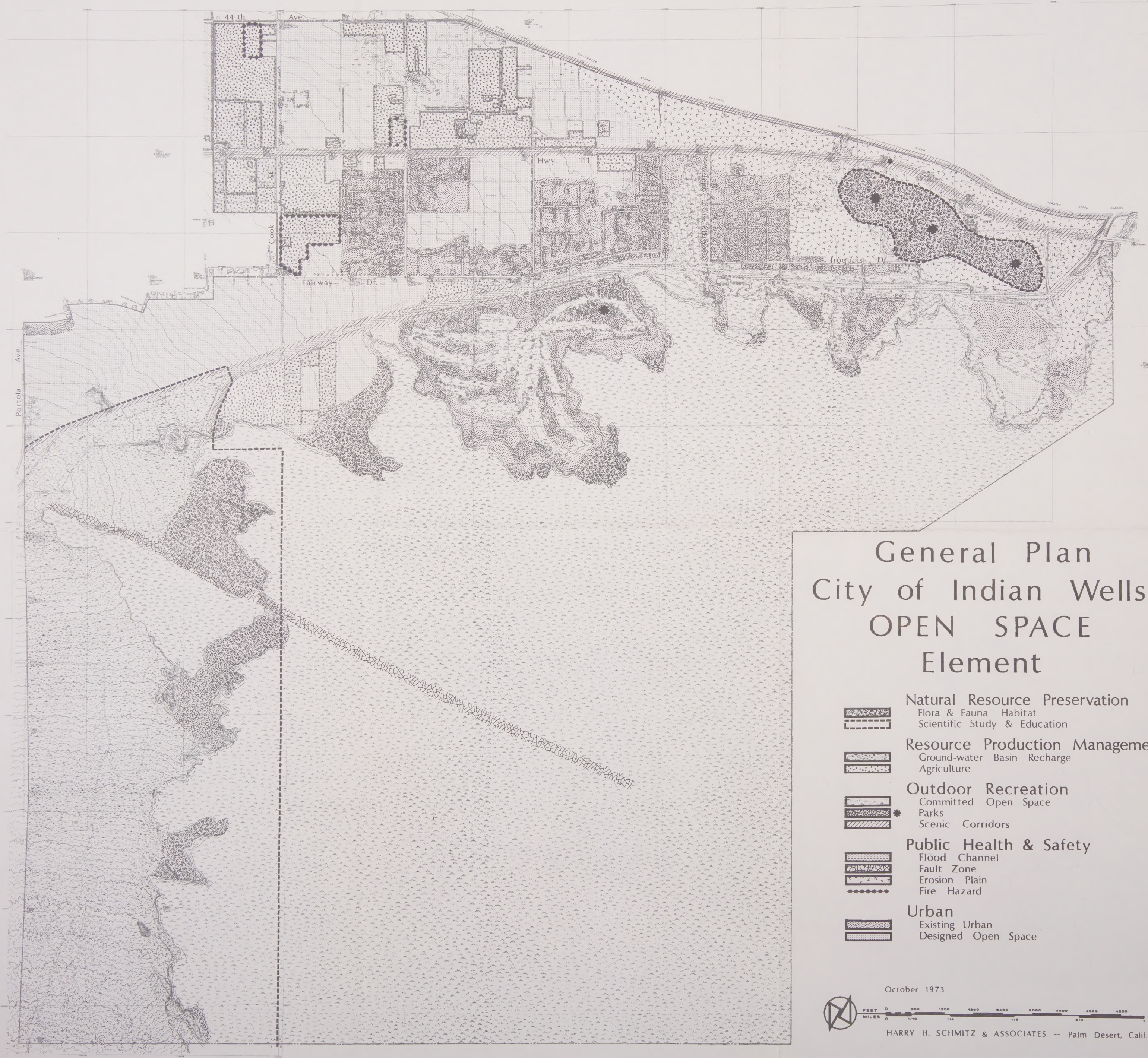
Adopted by Resolution No.74-9 on May 2, 1974

Joseph E. Young
JOSEPH E. YOUNG, MAYOR

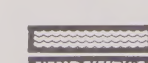
Jeanne M. Wilson
JEANNE M. WILSON, CITY CLERK



77 01656
Insert map 1 of 2



General Plan City of Indian Wells OPEN SPACE Element

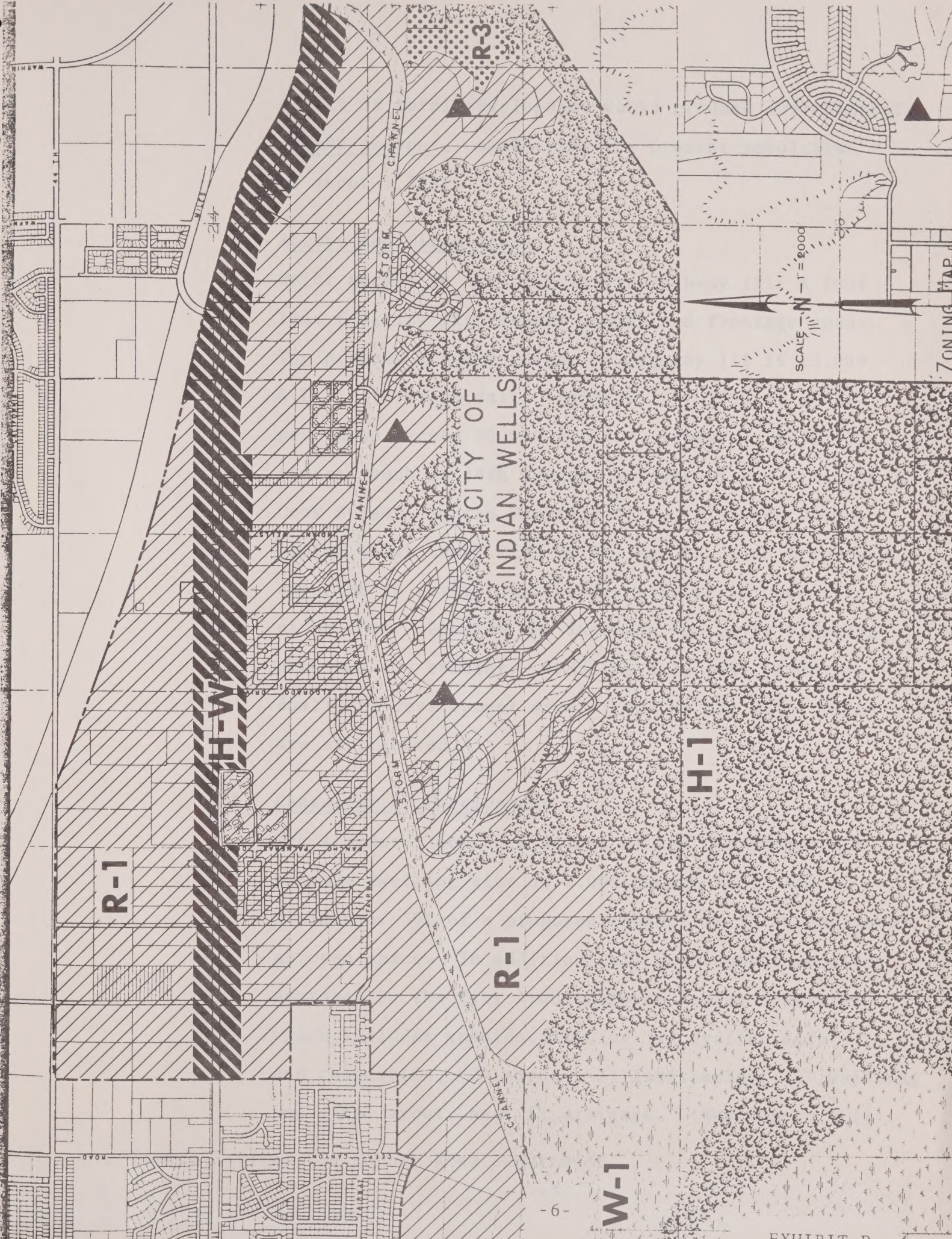
-  **Natural Resource Preservation**
 - Flora & Fauna Habitat
 - Scientific Study & Education
-  **Resource Production Management**
 - Ground-water Basin Recharge
 - Agriculture
-  **Outdoor Recreation**
 - Committed Open Space
 - Parks
 - Scenic Corridors
-  **Public Health & Safety**
 - Flood Channel
 - Fault Zone
 - Erosion Plain
 - Fire Hazard
-  **Urban**
 - Existing Urban
 - Designed Open Space

October 1973

HARRY H. SCHMITZ & ASSOCIATES -- Palm Desert, Calif.

77 01656
Insert map 2 of 2



R-1

H-W

R-1

CITY OF
INDIAN WELLS

H-1

W-1

R-3

SCALE - 1" = 2000'

ZONING MAP

effect of total development would produce approximately 15,400 persons, considering the present population of about 1,200.

2. Access and Circulation

Major access to the City is via Highway 111, a four lane facility with center median and frontage roads. The present traffic volume on Highway 111 is 13,000 A.D.T. (average daily traffic). By 1990 it is expected to exceed 20,000 A.D.T.* Likewise, major local streets such as 44th Avenue, Fairway Drive, Iroquois Dr., Cook Street, Rancho Palmeras Drive, Eldorado Drive, Indian Wells Lane, Club Drive, and Bay Club Drive are expected to carry considerably greater volumes than at present. Despite the increase, no major widening problems are evident. Widening will take place gradually as development occurs; and no new major routes are anticipated.

3. Character of Development

The standards and regulations of the City require a minimum dwelling size of 2,000 square feet; and a minimum of 50% of a proposed project is to be designed as open space. In addition, all development requires approval by the City Architectural Review Committee, which includes consideration of 1) traffic safety and congestion, 2) signs, 3) landscaping, 4) building and site layout, and 5) drainage. (See Appendix 1).

*Source: Riverside County Road Department

No industry is permitted within the City, and convenience commercial is restricted to a very limited amount by the Conditional Use Permit procedure. The scenic mountains and hillsides are zoned H-1. The flood spreading grounds and flood channel are zoned W-1. Both zones prohibit structures, per se; the H-1 may allow some development, but it is subject to the Conditional Use Permit procedure.

4. Utilities

Domestic water is served by the Coachella Valley County Water District (C.V.C.W.D.) and no change in purveyor is expected through the year 1990. The waste collection system currently being installed, both within and outside the City limits, will provide the basic framework for a complete sewer system for full development. The City will maintain the system within its City limits and the C.V.C.W.D. will operate the reclamation plant and lines outside the City. Natural gas is provided by the Southern California Gas Company and power is furnished by the Southern California Edison Company. Both the gas company and the water district predict adequate supplies of resources available for total development of the City; however, new sources and technology will be necessary beyond 1990. Southern California Edison Company estimates that adequate supplies of electricity will be available on a long range basis. The current fuel

shortage and inability to site new power generating sources may result in temporary curtailments of service; however, approvals of pending system improvements are expected to overcome present deficiencies.

B. Regional Location

The project site (City of Indian Wells) adjoins the City of Palm Desert and is located along the southwestern edge of the upper portion of the Coachella Valley. This Valley is located approximately 100 miles East of Los Angeles. (See EXHIBITS E₁ and E₂). It is about 50 miles long and averages between 10 and 20 miles in width. It trends in a northwest - southeast direction, being wider in the South, where it terminates at the Salton Sea and narrower in the North, where it begins at the San Gorgonio Pass. The Valley proper is a rather broad, flat alluviated area, with elevations ranging from 1,200 feet above sea level at Desert Hot Springs, to sea level at Indio, to 230 feet below sea level at the surface of the Salton Sea. The Coachella Valley would qualify as a rather autonomous region on its own, if judged merely by physical criteria showing geographic regions. However, on the basis of land uses the Valley is divided into two regions. The northern half (Upper Coachella Valley) consists of a tourist - recreation oriented economic base, while the southern half from Indio to the Salton Sea is predominately agricultural in nature.





EXHIBIT E2

SCALE IN MILES
0 5 10 15 20 25

The Valley is bordered on the northeast by the Little San Bernardino Mountains, obtaining elevations from 3,000 feet to 6,000 feet. It is bordered on the southwestern side by the higher and more rugged Santa Rosa - San Jacinto Mountains. These mountains range in elevation from 6,000 feet to the 10,831 foot summit of Mt. San Jacinto. Much of the scenic beauty of the area is provided by the mountains and deep canyons found along this southwestern side of the Valley.

C. Objective of Project

The objective of this project is to provide a "high-quality" residential community with a high level of amenities, such as open space, and including provision for resource conservation. The City's motto, "Multum in parvo" is a Latin phrase meaning "much in little" and signifies the philosophy of the City, namely that of providing great quality in a relatively small area. The City now has the highest per capita assessed valuation in California, and one City objective is to maintain this characteristic.

D. Phases and Time Schedules

The general policies carried out by the City include complete services to a project when it is developed. Because of the relatively small size of the City, it is anticipated that most any part of the City could be developed at any time. However, it is proposed by the

policies of the General Plan that agriculture will be encouraged for as long as economically feasible, and that the physical constraints connected with the most severe wind erosion areas would tend to forestall development in these areas. It is obvious, then, that the prime targets for development are the vacant, undeveloped areas adjacent to the previously subdivided lands.

Due to factors lying outside the control of the City, a definite time schedule cannot be determined. If the present trend in the Upper Coachella Valley continues, one can expect that its population will almost triple by 1990. Full development, or near saturation, of the City with dwelling units should not occur until after the year 2000.

E. Costs

The City has over 1,100 dwelling units at present, with an average market value of \$60,000 each. Using this current value and assuming total development at densities previously described, a total market value of \$340 million can be added to the present dwelling value of \$70 million; thereby producing a total of \$410 million dwelling unit market value (at present market values) in the City. The assessed value for taxing purposes would approximate \$102,500,000.00 based on these current costs.

II. ENVIRONMENTAL SETTING AND DEFINITION OF IMPACT AREA

A. Description of the Environment

1. Physical

a. Earth Resources

- 1) Land Form - Over 50% of the City (southerly portion) is composed of steep mountains and foothills. The Deep Canyon Spreading Grounds constitute in excess of 10% of lands within the City and lie in the southwestern portion. The balance (northerly portion) consists of a rather level plain protected from major flooding by the Deep Canyon system of dikes and channels. The overall elevations on this plain range from approximately 340 feet above sea level at its southwest corner to 90 feet above sea level at its northeast corner. The northeasterly portion is characterized by sand dune activity.
- 2) Space as a Resource - Over three-fourths of the City is presently devoted to some form of open space (i.e., steep mountains, groundwater recharge basin, flood channel) and is relatively not appropriate for urban useage. It is anticipated that these portions will be permanently kept as open space. In addition, the policies

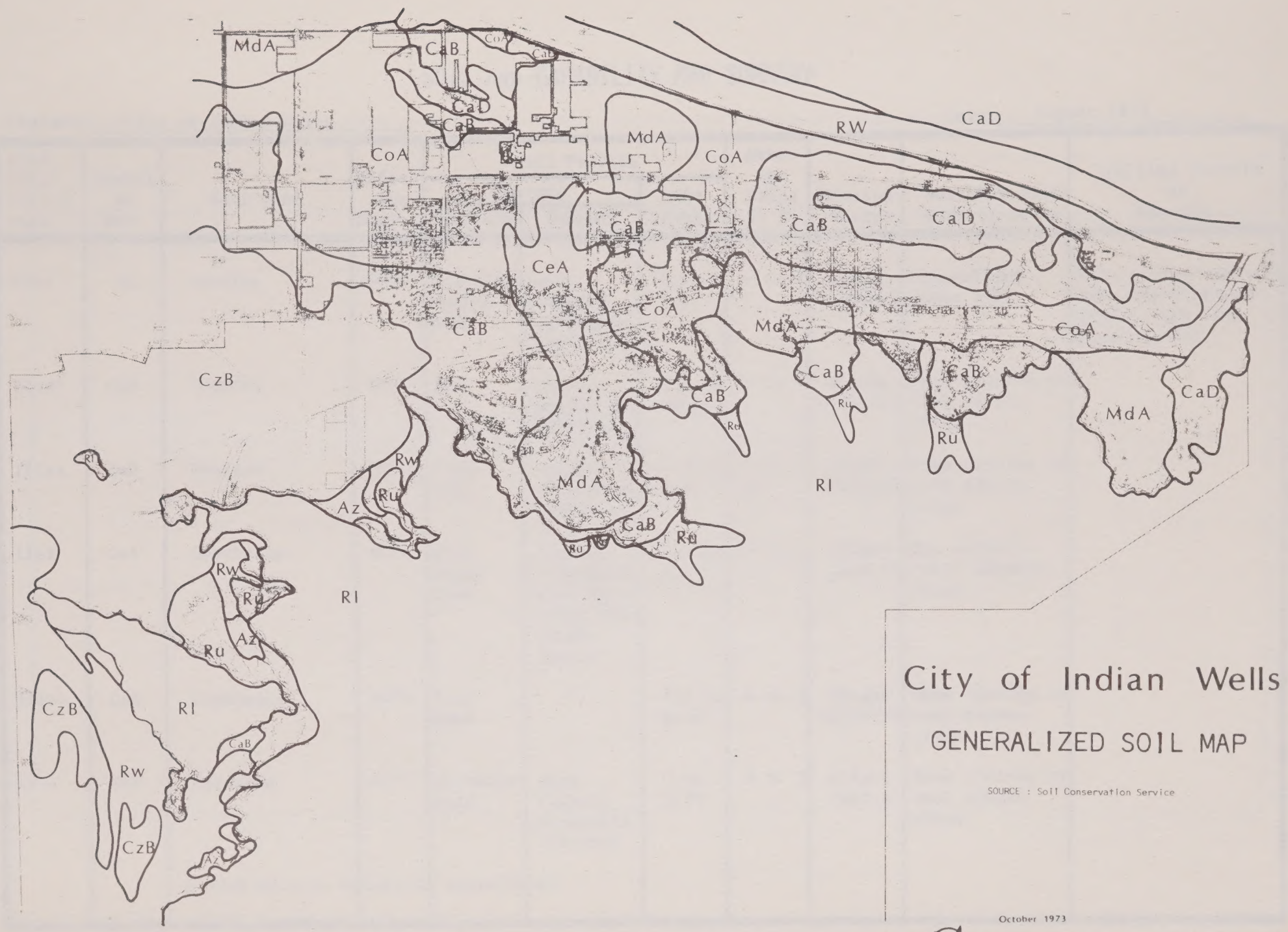
of the Open Space Element for the City dictate that in excess of 50% of the developable land will remain as additional open space.

3) Soil Characteristics - Various soils are found within the total project having capabilities, classifications, and characteristics as further described and shown by EXHIBITS F₁ through F₈.

4) Mineral Resources and Construction Materials - The only known deposits of construction materials in the immediate vicinity of the City are those which are located in the Deep Canyon Spreading Grounds area. These materials consist of rock, sand and gravel; however, the Open Space and Conservation Elements of the City's General Plan contemplate non-removal of this resource due to the problems associated with such removal and the adjacent residential character of that area. Further, other known deposits and existing facilities in the Coachella Valley are ample to supply the Valley's needs beyond the year 2000 A.D.

b. Water Resources

1) Regional Flow - The primary source of surface flow into the Upper Coachella Valley is the Whitewater River and several tributaries, such



City of Indian Wells

GENERALIZED SOIL MAP

SOURCE : Soil Conservation Service

October 1973

SOIL AND CAPABILITY MAP SUMMARY

Project: City of Indian Wells

Date: August 1973

Land Capa- bility Unit	Symbol on Map	Soil Name	Effec- tive Depth	Soil Profile			Aver- age Slope in %	* Erosion Status	Suitable Land Uses or Crops	Limiting Factors or Remarks
				Texture		AWC* Inches				
				Surface	Subsoil					
VIIs4	AZ	Carrizo	60"+	gravelly coarse sand	very rapidly permeable textures	2.5 - 3.0	0 to 2	slight (slight)	Specialized crops only	Very coarse texture, very rapid permea- bility, may have flood hazard
IIIe4	CaB	Rositas	60"+	sand	rapidly permeable textures	7.5 or more	0 to 5	slight (severe)	Deep rooting or cool season crops	
IIIe4	CaD	Rositas	60"+	fine sand	rapidly permeable textures	7.5 or more	5 to 15	slight (severe)	Deep rooting or cool season crops	
IIel	CeA	Coachella	60"+	fine sandy loam	rapidly permeable with thin finer tex- tured layers	7.5 or more	0 to 2	slight (mod.)	Any climati- cally adapted crops	
IIIe4	CoA	Coachella	60"+	fine sand	"	7.5 or more	0 to 2	slight (severe)	Deep rooting or cool season crops	
IVs4	CzB	Carsitas	60"+	gravelly sand	very rapidly permeable textures	3 to 3.75	0 to 5	slight (mod.)	Deep rooting or cool season crops	
* Wind erosion hazard in parenthesis										

*AWC - Available Water Holding Capacity for the entire soil profile

SOIL AND CAPABILITY MAP SUMMARY

Project: City of Indian Wells

Date: August 1973

Land Capa- bility Unit	Symbol on Map	Soil Name	Effen- tive Depth	Soil Profile			Aver- age Slope in %	*	Suitable Land Uses or Crops	Limiting Factors or Remarks
				Texture		AWC* Inches				
				Surface	Subsoil					
IIel	IfA	Indio	60"+	fine sandy loam	mod. slow permea- bility textures	7.5 or more	0 to 2	slight (mod.)	Any climati- cally adapted crops	
I	IjA	Indio	60"+	very fine sandy loam	mod. slow permea- bility textures	7.5 or more	0 to 2	slight (slight)	Any climati- cally adapted crops	
IIel	MdA	Mecca	60"+	fine sandy loam	Moderately rapid per- meability textures	7.5 or more	0 to 2	slight (mod.)	Any climati- cally adapted crops	
VIIIsl	RL	Rockland	0" to 10"	rock or variable	rock	less than 2	steep	slight or mod. (slight)	Not suitable for crops	
VIIIsl	RU	Rubbleland	40"+	stony outwash	stony outwash	2 to 3.75	8 to 15	slight or mod. (slight)	Not suitable for crops	
VIIIel	RW	Riverwash	60"+	variable coarse textures	variable coarse textures	2 to 3.75	0 to 5	variable	Not suitable for crops	
* Wind erosion hazard in parenthesis										

*AWC - Available Water Holding Capacity for the entire soil profile

SOIL SURVEY INTERPRETATIONS*

Soil Limitation, Suitability Rating, Soil Groupings and Single Factors:	Soil Symbol**					
	IfA	IjA	MdA	RL	RU	RW
Vegetative Group	A	A	A	G	G	J
Hydrological Group	B	B	B	D	C/D	C
Soil Limitation Ratings for:						
Dwellings						
with basements	Slight	Slight	Slight	Severe	Severe	Severe
without basements	Slight	Slight	Slight	Severe	Moderate	Severe
Shallow excavations	Slight	Slight	Slight	Severe	Severe	Severe
Local roads and streets	Slight	Slight	Slight	Severe	Severe	Severe
Lawns and golf fairways	Moderate	Moderate	Slight	Severe	Severe	Severe
Shrink-Swell Behavior	Low	Low	Low	Low	Low	Low
Corrositivity	High	High	High	Low	Low	Low

* These interpretations do not eliminate the need for on-site investigations of specific areas selected for development or use.

** Soil symbols correspond with symbols on SOIL and CAPABILITY MAP SUMMARY.

Degree of limitation expressed by comparative adjectives as slight, moderate, severe, very severe; suitability ratings expressed by good, fair, poor, unsuitable.

SOIL LIMITATION RATING FOR ALLOWABLE SOIL PRESSURE

Definition and Scope:

Soils are classified by their ability to withstand pressure imposed on them by foundations, as defined in Table 28-B of the Uniform Building Code. For the purpose of showing limitations in allowable soil pressure, the Soil Conservation Service divides the allowable loads into three groups, as follows:

Soil Property or Quality	Degree of Soil Limitation		
	Slight	Moderate	Severe
Allowable soil pressure (lb./sq. ft.)	More than 2000	1000 - 2000	Less than 1000

It should be noted that allowable soil pressure is only one factor in rating foundation suitability. There are other important factors which affect total foundation capacity; for example: shrink-swell, frost, and water table.

Assumptions:

In all cases, except for rock, allowable soil pressure is for a foundation one foot in width at a minimum depth of one foot below adjacent virgin ground. The surface foot of soil is not considered in rating the soil.

Criteria:

Ratings based on Table 28-B, Uniform Building Code, 1967 ed., Vol. 1, Sec. 2804.

VEGETATIVE SOIL GROUPS

Group Description:

- A CHOICE OF PLANTS NOT LIMITED BY SOILS. Soils are deep through very deep, moderately coarse through medium textured, moderately well through well drained, moderately rapidly through moderately slowly permeable. (Soils in this group can have slight wetness and slight salinity or alkalinity.)
- B CHOICE OF PLANTS LIMITED BY DROUTHINESS AND LOW FERTILITY LEVEL. Soils are coarse through gravelly medium textured, excessively drained, with less than 5 inches of available water-holding capacity in the root zone.
- G CHOICE OF PLANTS LIMITED BY DEPTH. Soils are shallow through moderately deep, well drained over bedrock or other unfractured dense materials.
- J CHOICE OF PLANTS DEPENDS UPON ON-SITE INVESTIGATION. Soils include those in the miscellaneous nonarable category, such as riverwash, stony or rocky upland, etc.

TABLE NO. 28-B ALLOWABLE SOIL PRESSURE
Uniform Building Code, 1967 Ed., Vol. 1, Sec. 2804

Class of Material	Minimum Depth Footing Below Adjacent Virgin Ground	Value Permissible if Footing is at Minimum Depth lb./sq. ft.	Increase in Value for Each Foot of Depth that Footing is Below Minimum Depth lb./sq. ft.	Maximum Value lb./sq. ft.
1	2	3	4	5
Rock	0'	20% of ultimate crushing strength	0	20% of ultimate crushing strength
Compact coarse sand	1'	1500*	300*	8000
Compact fine sand	1'	1000*	200*	8000
Loose sand	2'	500*	100*	3000
Hard clay or sandy clay	1'	4000	800	8000
Medium-stiff clay or sandy clay	1'	2000	200	6000
Soft sandy clay or clay	2'	1000	50	2000
Adobe	1'6"	1000**	50	
Compact inorganic sand and silt mixtures	1'	1000	200	4000
Loose inorganic sand and silt mixtures	2'	500	100	1000
Loose organic sand and silt mixtures and muck or bay mud	0'	0	0	0

* These values are for footings one foot (1') in width and may be increased in direct proportion to the width of the footing to a maximum of three times the designated value.

** For depths greater than eight feet (8') use values given for clay of comparable consistency.

HYDROLOGIC CLASSIFICATION OF SOIL SERIES

A - LOW RUNOFF POTENTIAL Soils having high infiltration rates even when thoroughly wetted and consisting of deep well to excessively drained sands or gravels. These soils have a high rate of water transmission. (Includes Psamments except those in Lithic, Aquic, or Aquodic subgroups; soils other than those in Groups C or D in fragmental, sandy-skeletal, or sandy families; soils in Grossarenic subgroups of Udults and Udalfs; and soils in Arenic subgroups of Udults and Udalfs except those in clayey or fine families.)

B - MODERATELY LOW RUNOFF POTENTIAL Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep and deep, moderately well and well-drained soils with moderately fine to moderately coarse textures with moderately slow to moderately rapid permeability. These soils have a moderate rate of water transmission. (Soils other than those in Groups A, C, or D.)

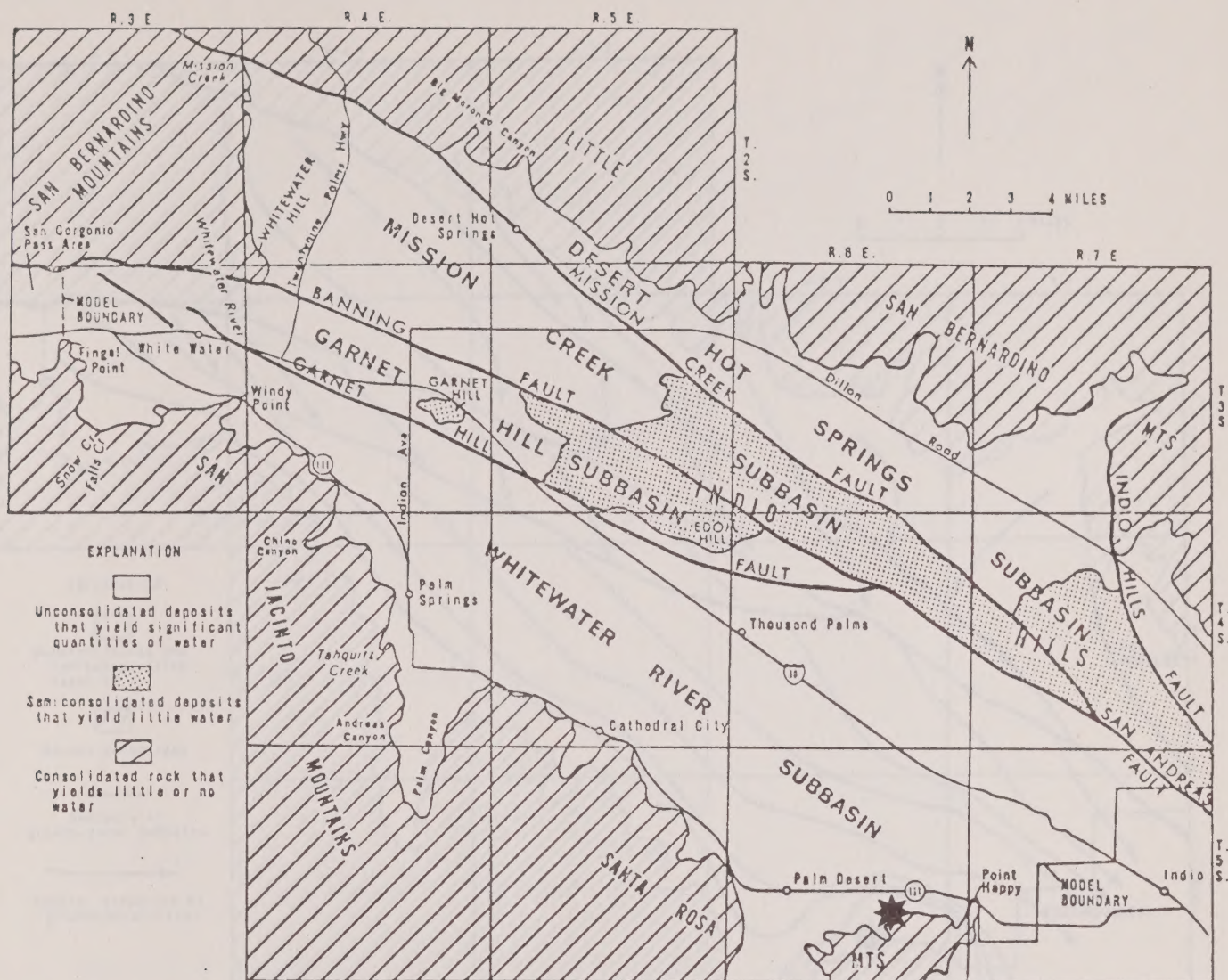
C - MODERATELY HIGH RUNOFF POTENTIAL Soils having slow infiltration rates when thoroughly wetted and consisting chiefly of well-drained and moderately well-drained soils, with slowly and very slowly permeable layers, with fragipans, hardpans, hard bedrock, and the like, and moderate depth -- 20" to 40", soils with moderately fine to fine texture or soils with moderate water tables. These soils may be somewhat poorly drained and have a slow rate of water transmission. They include soils in the Albic and Aquic subgroups; soils are in the Aeric subgroups and Aquepts, Aquolls, Aqualfs, and Aquults in loamy families. Soils other than those in Group D that are in fine, very fine, or clayey families, except those with kaolinitic, oxidic, or halloysitic mineralogy; humods and orthods; soils with fragipans or petrocalvic horizons; soils in shallow families that have permeable substrata; soils in Lithic subgroups that have rock that is pervious or cracked enough to allow water to penetrate.

D - HIGH RUNOFF POTENTIAL Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with a high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission (Includes all Vertisols; all Histosols; all Aquods; soils in Aquepts, Aquolls, Aqualfs, and Aquults except for Aeric subgroups in loamy families; soils with natric horizons; soils in Lithic subgroups that have impermeable substrata; and soils in shallow families that have impermeable substrata).

as Snowcreek and Palm Canyon. A U.S.G.S. Analog Model Study of the groundwater basin was conducted for the Upper Coachella Valley in 1971. (See EXHIBITS G₁, G₂, and G₃). It has been estimated that the long term average annual stream flow from drainages was approximately 33,000 acre feet.

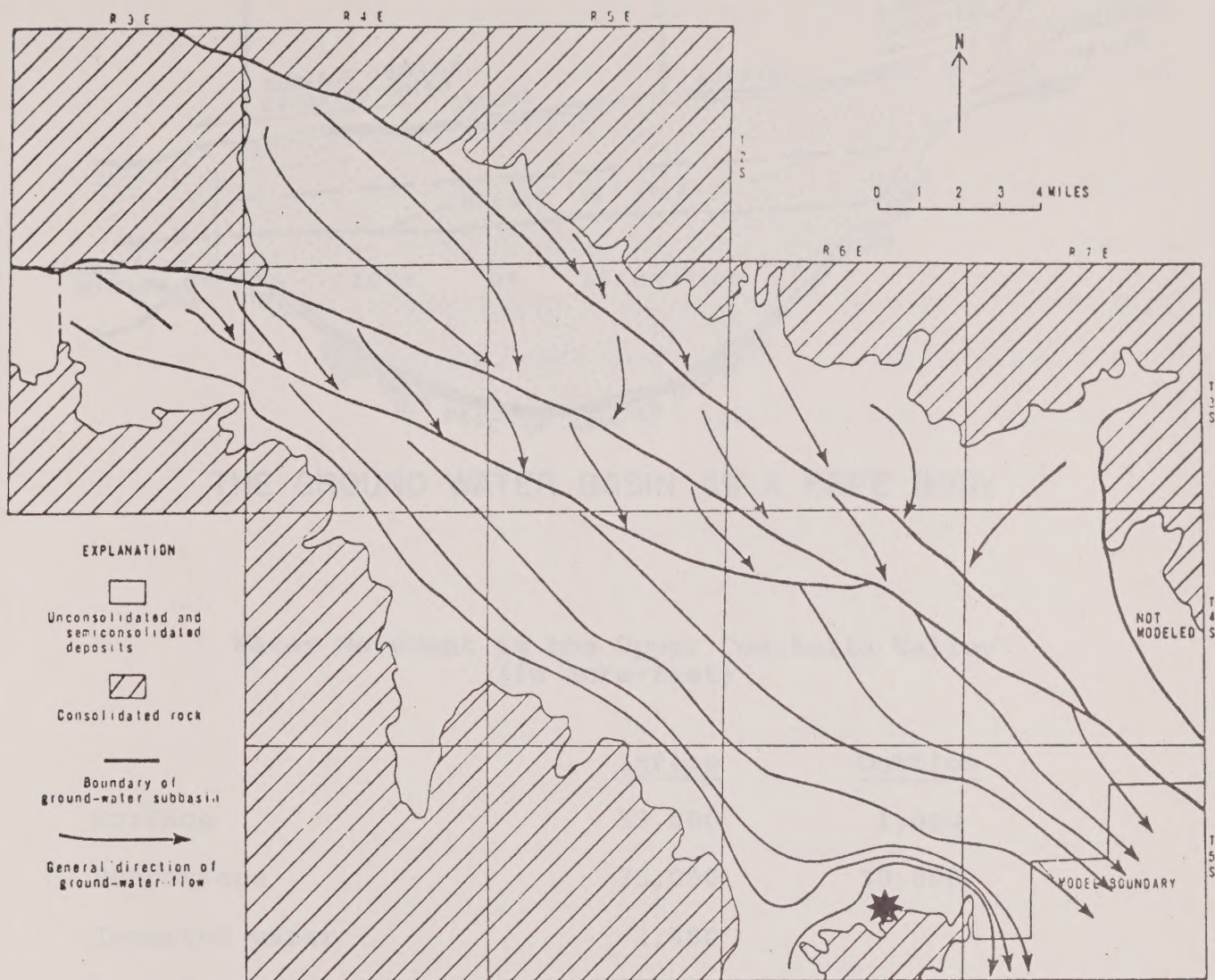
The sub-surface inflow to the Upper Coachella Valley is primarily from the San Gorgonio Pass and Whitewater River channel areas. The latter flows mentioned are, of course, variable, dependent upon the amount of precipitation.

The Lower Coachella Valley receives imported water from the Colorado River which is primarily used for agricultural purposes. This water has little importance to the Upper Valley. In 1966 2,500 acre feet was delivered to the upper portion of the Coachella Valley, and this figure continues to approximate the yearly delivery to the Upper Valley. Additional waters inflowing into the Upper Coachella Valley are by means of reclaimed water from sewage treatment plants and golf course lakes, where percolation takes place.



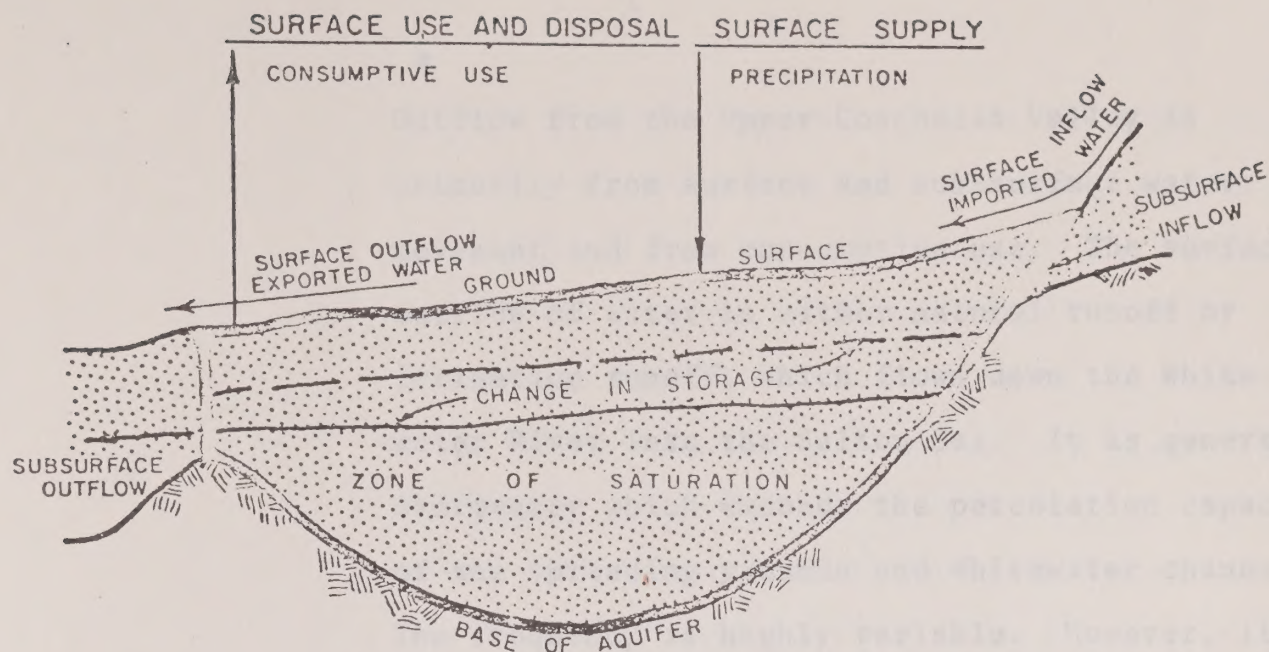
Ground-water subbasins and generalized geology.*

*USGS, 1971.



Generalized ground-water flow lines, 1967.*

*USGS, 1971.



THE GROUND WATER BASIN AS A FREE BODY

Water Movement in the Upper Coachella Valley
(in acre-feet)

	<u>Inflow</u>	<u>Outflow</u>
Surface	33,000	1,000
Subsurface	25,000	30,000
Imported water	2,480	
Reclaimed water	2,805	
Consumptive use		<u>64,600</u>
TOTAL	63,285	95,600

This table contains recent figures for some areas of water flow. As a result, the hydraulic equation is no longer balanced and the table should only be considered as a general tabulation. However, a general overdraft of about 34,000 acre-feet seems reasonable.

•

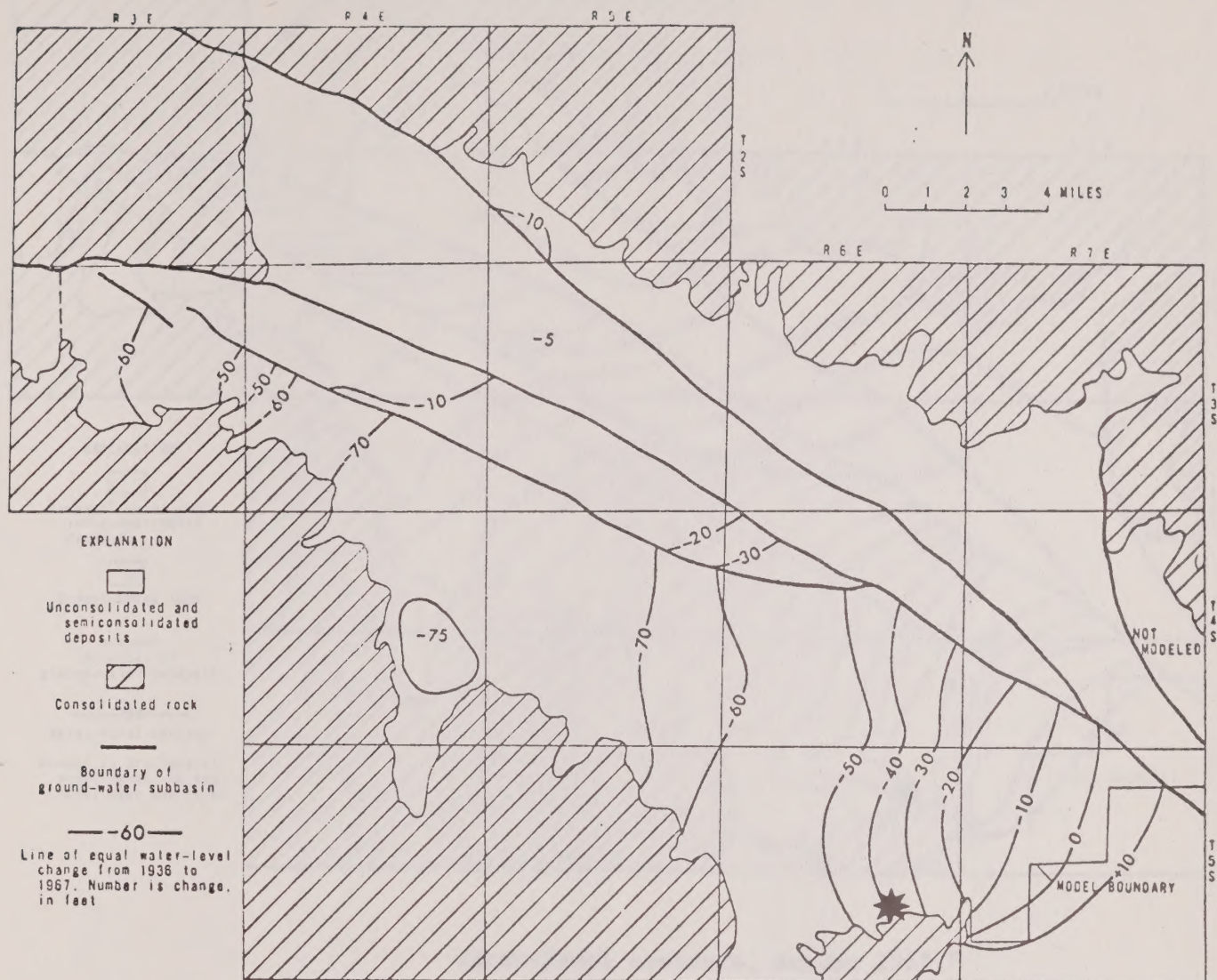
Outflow from the Upper Coachella Valley is primarily from surface and sub-surface water movement and from consumptive use. The surface outflow of water is either natural runoff or irrigation runoff, which flows down the Whitewater River into the Salton Sea. It is generally stormwater which exceeds the percolation capacity of the spreading grounds and Whitewater channel. The frequency is highly variable. However, it is generally considered to average 1,000 acre feet per year in the Upper Coachella Valley and 125,000 acre feet of irrigation drainage in the Lower Valley.

Groundwater outflow is water which flows out of the upper basin into the lower basin. This outflow is variable depending upon the recharge pressure gradient. It has been estimated that 50,000 acre feet once flowed yearly from the upper basin into the lower basin. In 1967 the rate of sub-surface outflow from the Upper Valley was approximately 30,000 acre feet per year.

Consumptive uses of water consist of both net pumpage and evapotranspiration loss. Net pumpage consists of groundwater extraction less the

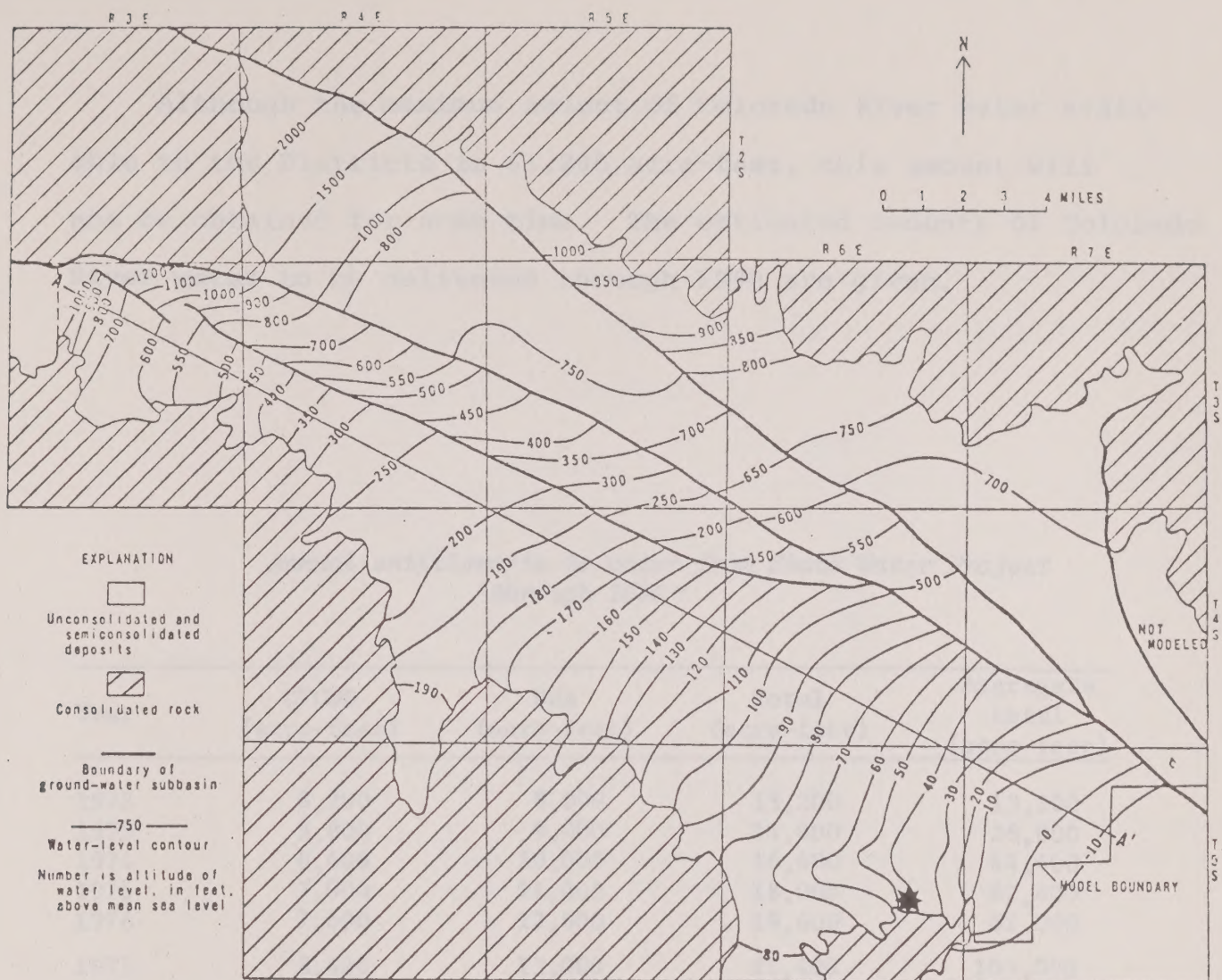
amount of reclaimed water percolated into the basin. In 1967 net pumpage amounted to 50,500 acre feet in the Upper Valley. It has been estimated that net pumping since 1967 has increased 20%, amounting to a total of 60,600 acre feet pumpage at present. Further, it is estimated that about 4,000 acre feet are consumed annually by native vegetation and evaporation from land surface. The total consumptive use is, therefore, estimated at 64,600 acre feet.

- 2) Regional Groundwater Storage - Useable groundwater in the Upper Coachella Valley is being used faster than it is being replenished. (See EXHIBITS G₄ and G₅). In order to offset this overdraft, during the early 1960s the Coachella Valley County Water District and the Desert Water Agency (DWA) contracted with the State of California for an annual supply of 61,200 acre feet from the, then proposed, California Aqueduct. (See EXHIBIT G₆). The cost of this project is estimated to be in excess of \$75 million. Therefore, in 1963 both agencies began negotiations with the Metropolitan Water District (M.W.D.) for an exchange of state water for part of M.W.D.'s Colorado River Water from their aqueduct



Change in water-level elevation, 1936-67.*

*USGS, 1971.



Water-level contours, autumn 1967.*

* Source U.S.G.S., 1971.

Although the maximum amount of Colorado River water available to the Districts is 61,200 acre-feet, this amount will not be obtained for some time. The estimated amounts of Colorado River water to be delivered through 1990 are given.

*Annual entitlements to water from State Water Project
through 1990 **

Year	CVCWD (acre-feet)	DWA (acre-feet)	Total (acre-feet)	Aggregate total (acre-feet)
1972	5,200	8,000	13,200	13,200
1973	5,800	9,000	14,800	28,000
1974	6,400	10,000	16,400	44,400
1975	7,000	11,000	18,000	62,400
1976	7,600	12,000	19,600	82,000
1977	8,420	13,000	21,400	103,000
1978	9,240	14,000	23,200	127,000
1979	10,100	15,000	25,100	152,000
1980	10,900	17,000	27,900	180,000
1981	12,100	19,000	31,100	211,000
1982	13,300	21,000	34,300	245,000
1983	14,500	23,000	37,500	283,000
1984	15,800	25,000	40,800	323,000
1985	17,000	27,000	44,000	367,000
1986	18,200	29,000	47,200	414,000
1987	19,400	31,500	50,900	465,000
1988	20,600	34,000	54,600	520,000
1989	21,900	36,500	58,400	578,000
1990	23,100	38,100	61,200	640,000
and after				

* U.S.G.S. 1971. "Analog Model Study of the Groundwater Basin", p. 67. (Table 17)

passing through the Upper Coachella Valley. This exchange negotiation has facilitated the deferment of construction of the costly water transport facilities by means of the California Aqueduct. The following is a summary of ground-water in storage: ¹

Subbasin	Depth ² (feet)	Storage (acre-feet)
Desert Hot Springs	300	779,000
Mission Creek	500	2,630,000
Garnet Hill	500	1,520,000
Whitewater River	700	10,200,000
Total		15,700,000

Source: USGS, 1971.

¹Ground water in storage is the area times the depth times the storage coefficient.

²Depth is an arbitrary choice that represents most reasonable thickness of saturated deposits that can be economically and hydrologically utilized.

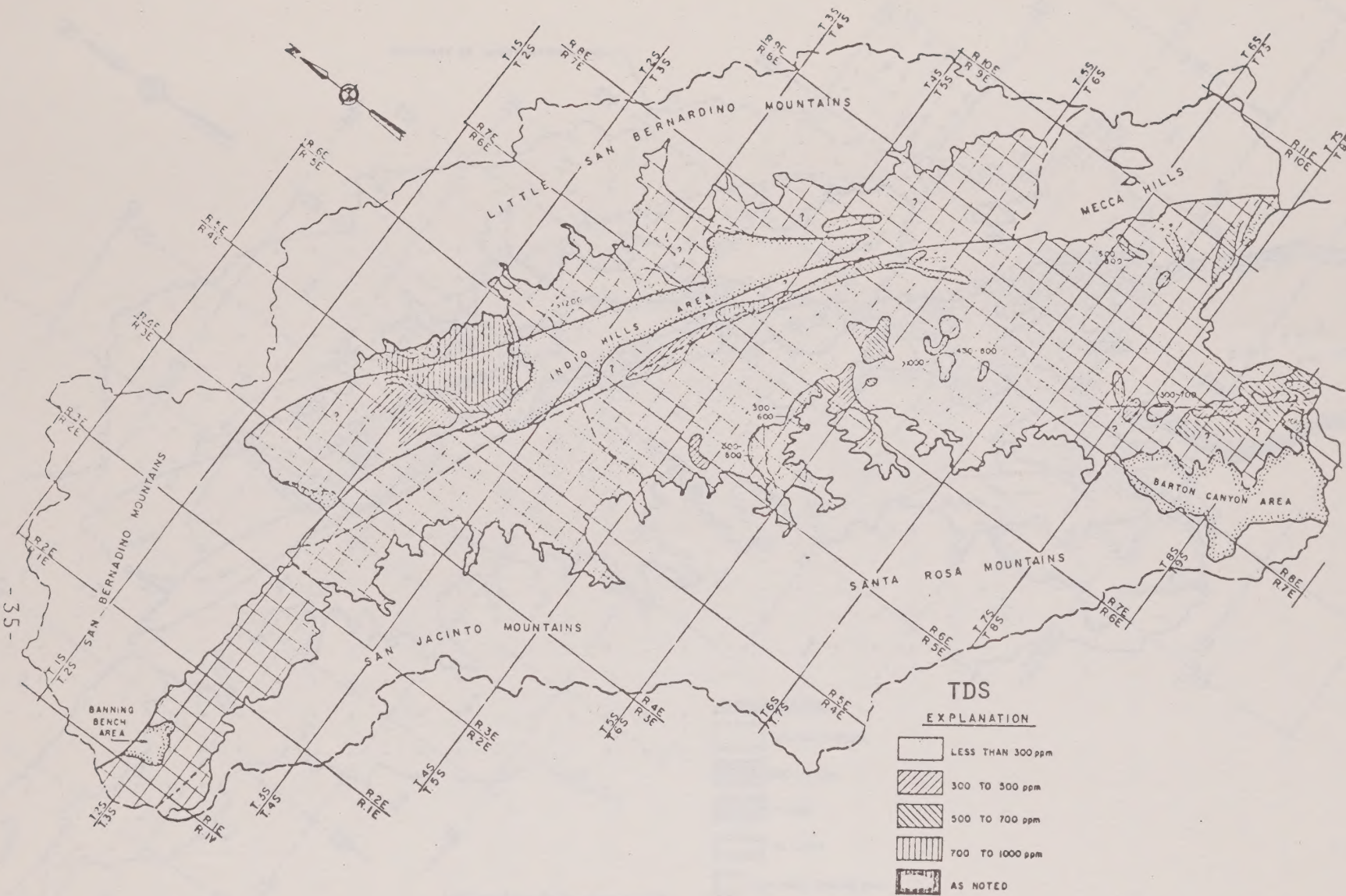
- 3) Groundwater Quality - Groundwater in the Upper Coachella Valley is generally good, with low T.D.S. concentrations. EXHIBITS G₇ and G₈ indicate the typical groundwater quality for T.D.S. (Total Dissolved Solids) in the Coachella Valley. EXHIBIT G₉ indicates fluoride concentrations.
- 4) Local Conditions - Practically all water used within the City is obtained from wells located

TYPICAL GROUND WATER QUALITY, FALL, 1966

Basin Subdivision	Total Dissolved Solids				Hardness (as CaCO ₃)		Fluorides	
	ppm	<500-good >500-poor	TAF ^(a)	Tons ^(b)	ppm	Degree	ppm	Remarks
Desert Hot Springs Sub-basin	955	poor	1.3	2,567,000	80-180	Soft-mod hard	4-22	Unuseable for continuous human consumption
Mission Creek Sub-basin	470	good	0.64	761,000	100-200	mod hard	NW-1/2 <0.8 SE-1/2: 1.4-8.0	---
Whitewater Subbasin Palm Springs Sub-Area	257	good	0.34	544,300	170-180	mod hard	<0.8	---

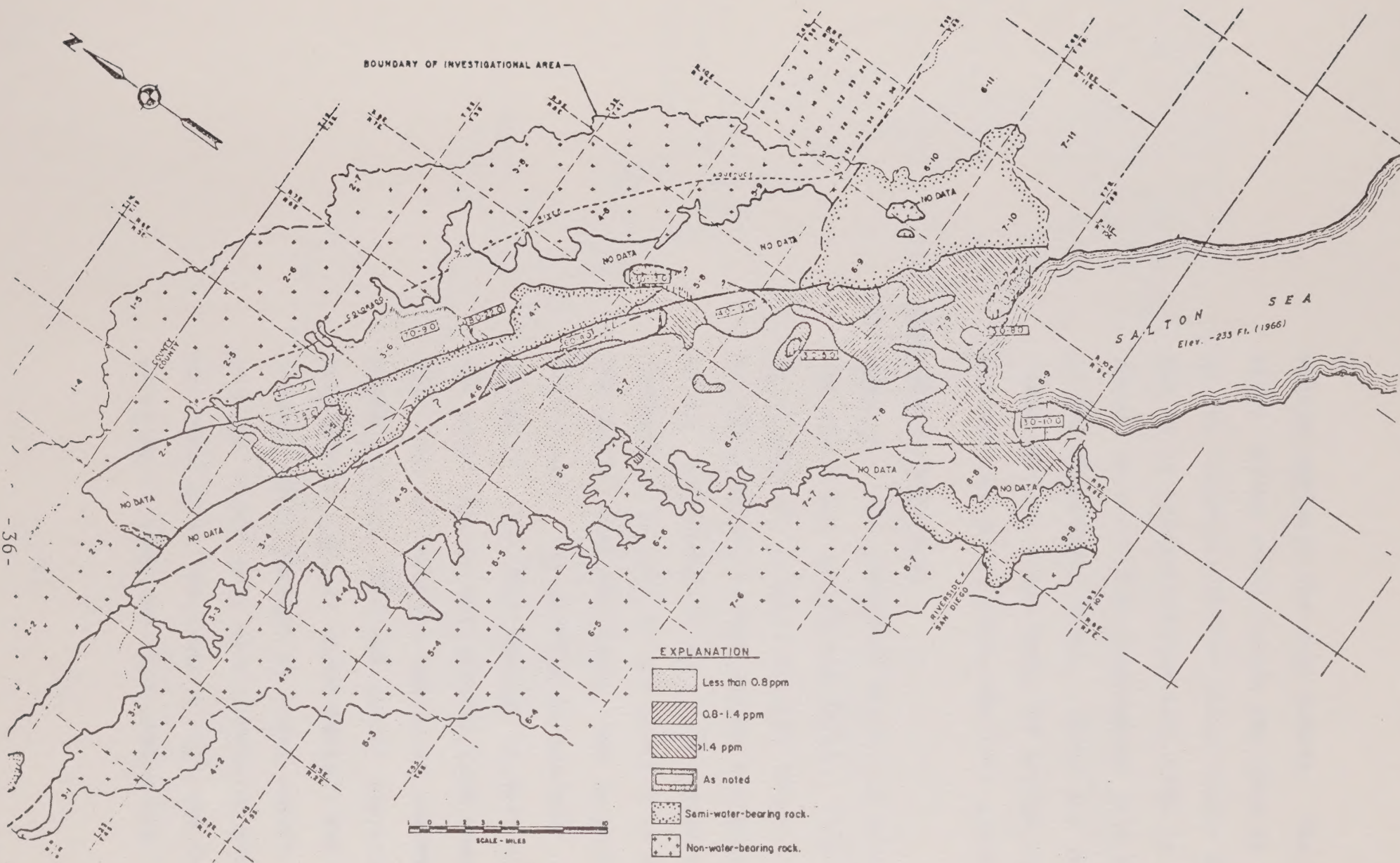
(a)
Tons per acre-foot.

(b)
In water contained within 500 feet of ground surface.



GROUNDWATER QUALITY MAP

*Source: Bechtel, 1967.



FLUORIDE CONCENTRATIONS

* Source: Bechtel, 1967.

within and near the City limits. The domestic water system which serves the City is operated by the Coachella Valley County Water District and it is interconnected with that of the Palm Desert Country Club development just northerly of the Whitewater River. There are several large private wells used for irrigation and agriculture also within the City limits.

c. Atmospheric Resources

- 1) Quality - The Coachella Valley is located in the Southeast Desert Air Basin. (See EXHIBIT H₁). The air quality of this Valley has been steadily deteriorating during the past few years. (See EXHIBIT H₂). The resource is influenced in part by the quality of air in the South Coast Air Basin, and in part by local conditions. The problem is twofold: Dust and oxidents. The dust problem is most acute in the Lower Valley and results from human activity such as burning, vehicular movement on unpaved roads, sand and gravel operations andsoforth. In the Upper Valley, and particularly after periods of heavy runoff, the seasonal winds pass over spreading grounds and open areas, picking up silt and dust and carrying it high into the atmosphere. These



AIR POLLUTION CONTROL DISTRICT
RIVERSIDE COUNTY
5888 Mission Boulevard
Riverside, California 92509

GALEN R. KINLEY, DIRECTOR

AIR POLLUTION EMISSION INVENTORY REPORT
AVERAGE TONS PER DAY

EMISSION SOURCE	INVENTORY DATE JANUARY 1		
	1969	1971	1973
INDUSTRIAL	38.8	19.4	18.3
INCINERATION	104.5	55.8	18.2
FUEL COMBUSTION	12.8	6.5	6.3
AGRICULTURE	22.6	11.5	12.3
MOTOR VEHICLES	733.7	767.2	*1185.0
RAILROADS	**	7.8	4.3
AIRCRAFT	52.2	51.4	51.4
TOTAL TONS	964.6	919.6	1295.8

* Method of test procedures changed by U. S. Environmental Protection Agency and California Air Resources Board.

** NOT INVENTORIED

dust storms are relatively infrequent, however, and as more and more open space lands are converted to urbanization there is less natural area from which the winds can accumulate silt. The oxident problem is quite different. Most of the high oxident levels are believed to be the result of pollution from the South Coast Air Basin, which have been carried through the San Gorgonio Pass. Local vehicular sources undoubtedly contribute to the problem, but the exact degree of contribution is unknown.

The pollution problem is accentuated by the region's physiography. During the summer months marine air innundates the Valley from the South. Because of the mountains to the North, East and West, air commonly becomes trapped in the Valley.

As can be seen by EXHIBITS H₃ through H₆, the motor vehicle is the primary cause of high pollution readings.

- 2) Climate - The climate of the area is influenced by the low mid-latitude position (34° North), by location inland from the Pacific Ocean, and by the arrangement of land forms in the area consisting chiefly of the mountains of the

AIR POLLUTION CONTROL DISTRICT
RIVERSIDE COUNTY
5888 Mission Boulevard
Riverside, California 92509

GALEN R. KINLEY, DIRECTOR

AIR POLLUTION SOURCES

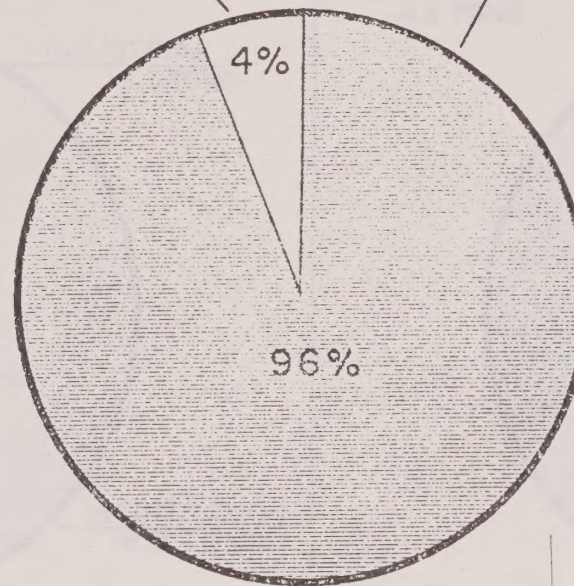
EMISSIONS—TONS PER DAY

STATIONARY SOURCES 55.1 TONS

AS OF JANUARY 1, 1973

TRANSPORTATION SOURCES 1240.7 TONS

AS OF JANUARY 1, 1973



PIE SLICES show breakdown of air pollution sources.

TOTAL Stationary and Transportation sources daily average **1295.8** Tons per day

AIR POLLUTION CONTROL DISTRICT
RIVERSIDE COUNTY
5888 Mission Boulevard
Riverside, California 92509

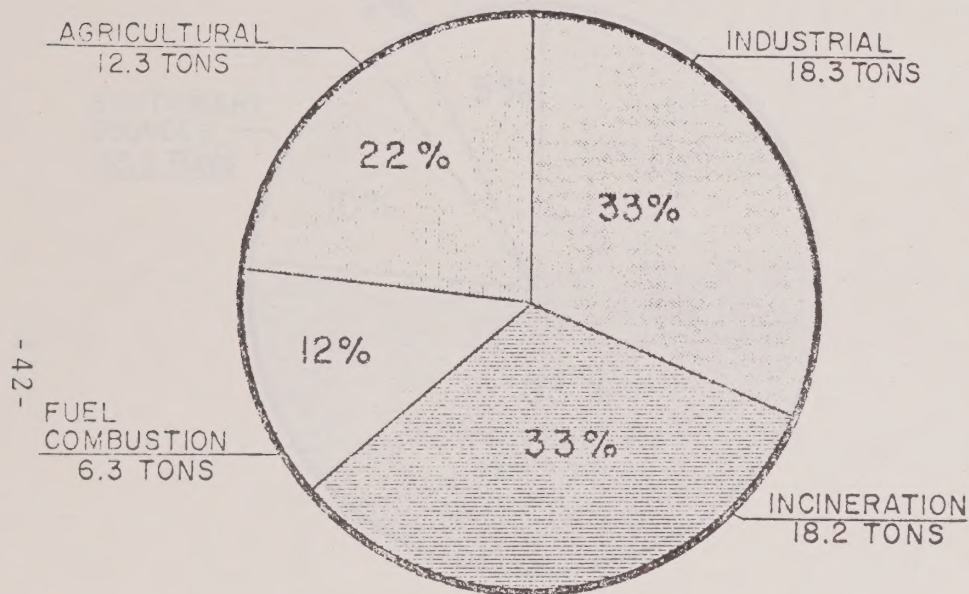
GALEN R. KINLEY, DIRECTOR

AIR POLLUTION SOURCES

EMISSIONS - TONS PER DAY

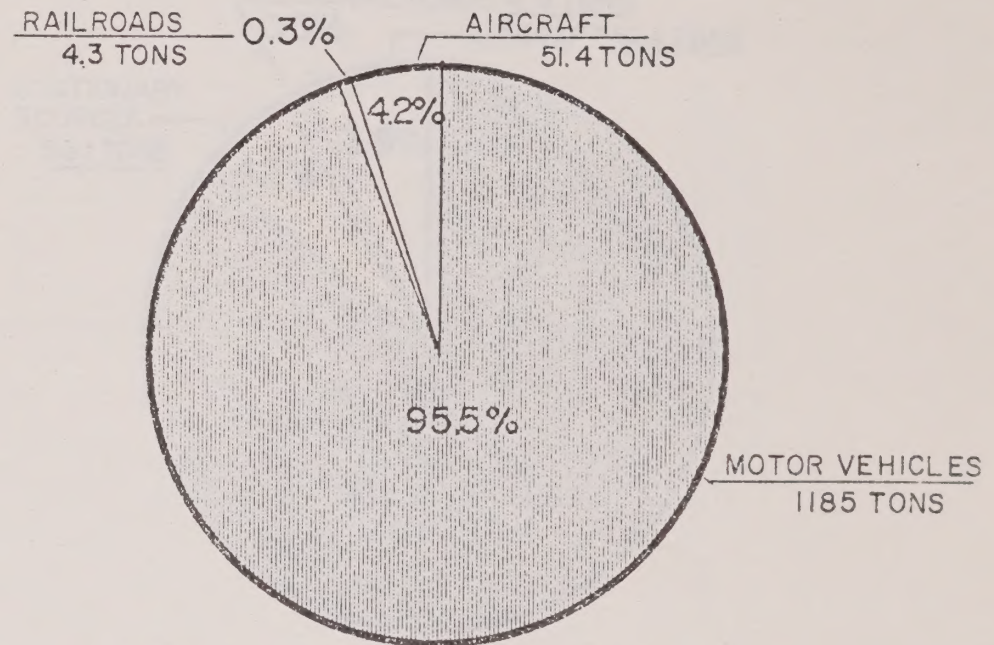
AS OF JANUARY 1, 1973

STATIONARY SOURCES



PIE SLICES show breakdown of current air pollution emissions. Stationary source daily average **55.1 Tons** per day.

TRANSPORTATION SOURCES



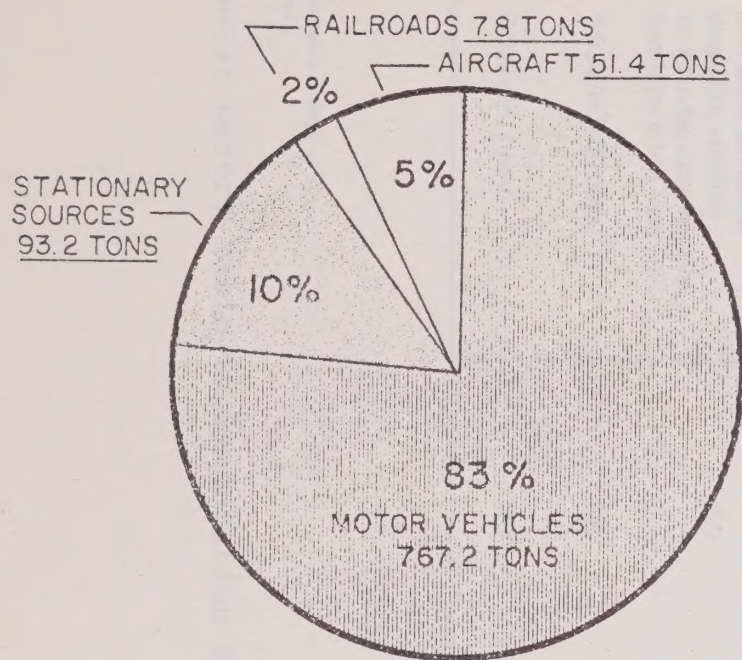
PIE SLICES show breakdown of current air Pollution emissions. Transportation sources daily average **1240.7 Tons** per day.

* New test procedure used by both A.R.B. & E.P.A.

AIR POLLUTION CONTROL DISTRICT
RIVERSIDE COUNTY
5888 Mission Boulevard
Riverside, California 92509

AIR POLLUTION SOURCES

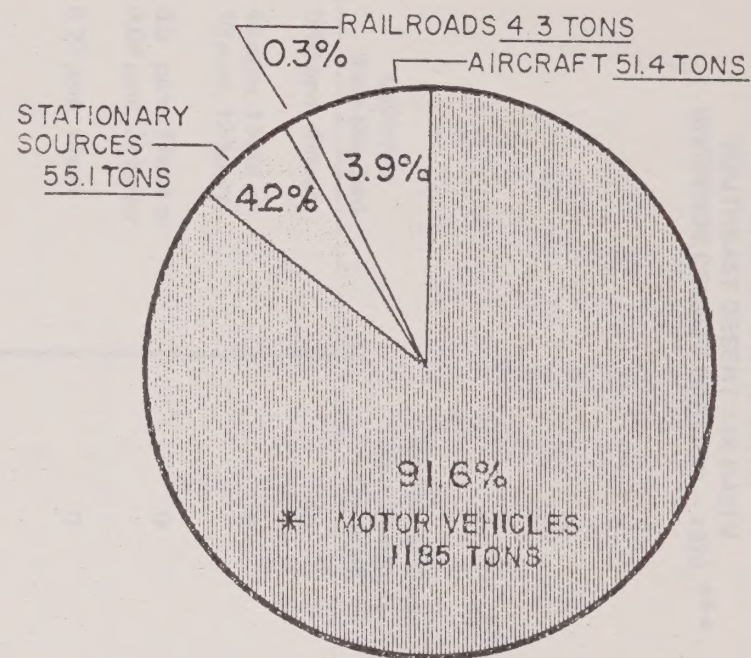
EMISSIONS - TONS PER DAY



JANUARY 1, 1971

STATIONARY SOURCES **93.2 TPD**

TRANSPORTATION SOURCES **826.4 TPD**



JANUARY 1, 1973

STATIONARY SOURCES **55.1 TPD**

TRANSPORTATION SOURCES **1240.7 TPD**

* New Test Procedure used by both ARB & EPA.

AIR MONITORING DATA
SOUTHEAST DESERT AIR BASIN
RIVERSIDE COUNTY PORTION — 1970 ***

Contaminant	California State Standard	Number of Days State Standards Exceeded	Maximum Average Concentration
Oxidant	0.10 ppm, 1-hour	49	0.48 ppm
Carbon Monoxide	40 ppm, 1-hour or 10 ppm, 12-hours	0	0 ppm
Sulfur Dioxide	0.5 ppm, 1-hour or 0.04 ppm, 24-hours	0	0 ppm
Nitrogen Dioxide	0.25 ppm, 1-hour	0	0 ppm
Particulate Matter	100 $\mu\text{g}/\text{m}^3$, 24-hours or 60 $\mu\text{g}/\text{m}^3$, annual geometric mean	35*	471*
Hydrocarbons	None	ND	ND
Visibility Reducing Particles	Sufficient to reduce prevailing visibility to 10 miles when relative humidity is less than 70%	ND	ND
Lead (Particulate)	1.5 $\mu\text{g}/\text{m}^3$, 30-days	ND	ND
Hydrogen Sulfide	0.03 ppm, 1-hour	ND	ND

ND = No Data

* Random high-volume sampling every 6 days

** AISI tape sampling in COH units

*** Source: Southeast Desert Basin Implementation Plan, 1971.

transverse range and penninsula range geomorphic provinces which tend to produce a rain shadow effect in the desert area. The penninsula range (San Jacinto - Santa Rosa mountain range) forms the most important barrier, due to its high elevation and also because it trends parallel to the coastline. This range provides an orographic barrier along the western portion of the Coachella Valley. As a result, rainfall ranges from 40+ inches on the windward side of the mountains to less than 5+ inches on the lee side. The mountainous areas have cool temperatures and snow occurs in the winter months. The desert and Valley areas have climates typical of arid areas in the southwest, which are characterized by low precipitation, low humidity, high summer temperatures, mild sunny winters, and winds at certain times of the year.

Temperatures in the Valley range from summer average maximums of over 100°F to winter average minimums of slightly above 40°F. Absolute maximum goes over 120°F. The absolute minimum, slightly below 20°F. The average annual temperature over a 50 year period is approximately 73°F. EXHIBIT I₁ indicates

transverse range and penninsula range geomorphic provinces which tend to produce a rain shadow effect in the desert area. The penninsula range (San Jacinto - Santa Rosa mountain range) forms the most important barrier, due to its high elevation and also because it trends parallel to the coastline. This range provides an orographic barrier along the western portion of the Coachella Valley. As a result, rainfall ranges from 40+ inches on the windward side of the mountains to less than 5+ inches on the lee side. The mountainous areas have cool temperatures and snow occurs in the winter months. The desert and Valley areas have climates typical of arid areas in the southwest, which are characterized by low precipitation, low humidity, high summer temperatures, mild sunny winters, and winds at certain times of the year.

Temperatures in the Valley range from summer average maximums of over 100°F to winter average minimums of slightly above 40°F. Absolute maximum goes over 120°F. The absolute minimum, slightly below 20°F. The average annual temperature over a 50 year period is approximately 73°F. EXHIBIT I₁ indicates

Palm Springs

Period	<u>AVERAGE TEMPERATURE</u>			<u>RAIN</u>	<u>HUMIDITY</u>		
	Min.°	Mean°	Max.°	Inches	4 A.M.	Noon	4 P.M.
January	39.1	53.7	68.3	1.22	57	32	32
April	52.6	69.9	86.9	.25	55	22	19
July	73.2	90.6	107.8	.29	60	28	25
October	56.5	74.0	91.4	1.33	58	27	28
Year	54.7	70.9	87.5	7.07	58	27	26

Indio

Period	<u>AVERAGE TEMPERATURE</u>			<u>RAIN</u>	<u>HUMIDITY</u>		
	Min.°	Mean°	Max.°	Inches	4 A.M.	Noon	4 P.M.
January	37.8	54.1	70.4	0.50	57	32	32
April	57.0	72.3	87.5	0.10	55	22	19
July	76.9	92.1	107.2	0.12	60	28	25
October	58.7	75.5	92.2	0.23	58	27	28
Year	57.2	73.1	89.0	3.38	58	27	26

Source: U. S. Weather Bureau.

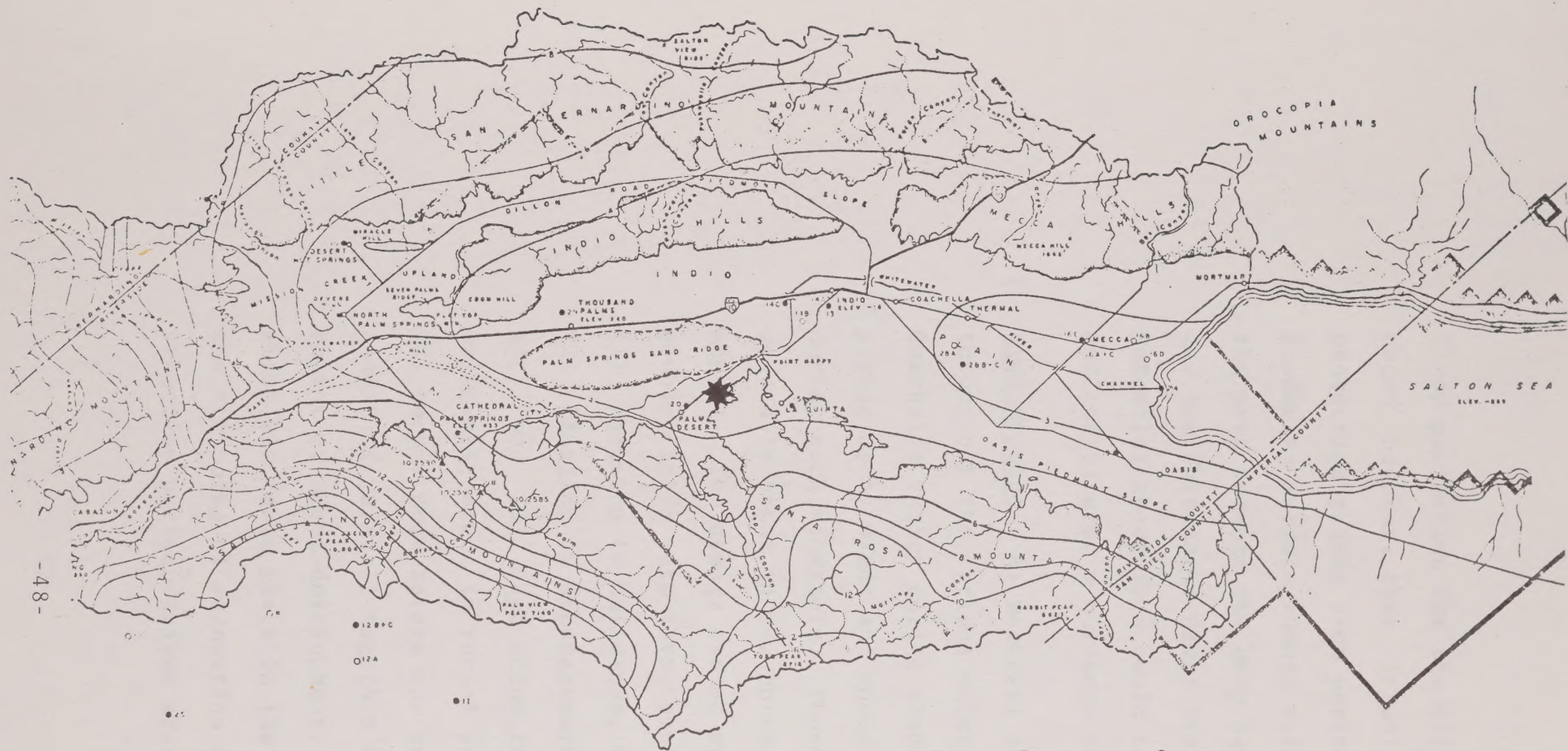
temperature, precipitation, and humidity in the Palm Springs and Indio areas.

The City of Indian Wells can be assumed to have similar characteristics as the median between these two cities. (See EXHIBIT I₂).

d. Processes

- 1) Drainage - The primary drainage system for the Upper Coachella Valley is that of the Whitewater River Storm Channel. The river is an intermittent stream which originates in the San Bernardino mountains and flows along the southwestern side of the Upper Coachella Valley. Many years ago the river was a broad flood plain, but it is now well channeled. In addition, well defined tributaries drain from all the canyons, draining the San Jacinto range. In 1967 a major Whitewater River flood washed out most crossings from Palm Springs to Indio. Subsequently and currently a Whitewater River Channel bridge construction program is underway throughout the Upper Coachella Valley.

The local drainage pattern in the City of Indian Wells consists primarily of the Deep Canyon Storm Channel and its associated tributaries. A channel and dike system provides the major

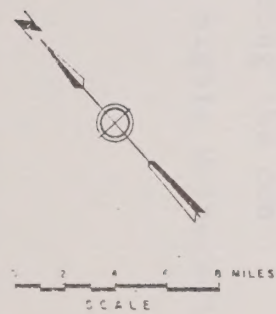


EQUAL RAINFALL CONTOURS

EXPLANATION

- Boundary of District
- Boundary of area investigated by Department of Water Resources.
- Boundary of highland features, dashed where poorly defined.
- Lines of equal average seasonal precipitation 1930-1960
- Lines of estimated equal average seasonal precipitation.
- Precipitation Station, active
Station relocation indicated by letters A, B, C, etc. Letter A denotes first location.
- Precipitation Station, inactive.
- Stream Gaging Station, active.
- Stream Gaging Station, inactive.

* Source: Bechtel, 1967.



flood protection for the City. It should be noted, however, that virtually no adequate protection exists from periodic thunderstorms producing surface runoff within the City in the area between the Deep Canyon Storm Channel and the Whitewater River Storm Channel. This potential sheet flow could cause minor damage and constitutes a nuisance problem.

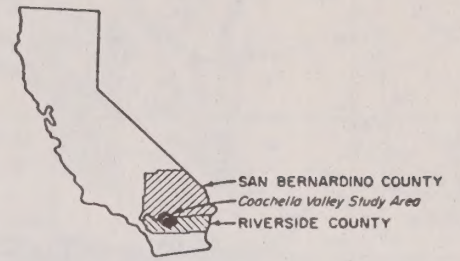
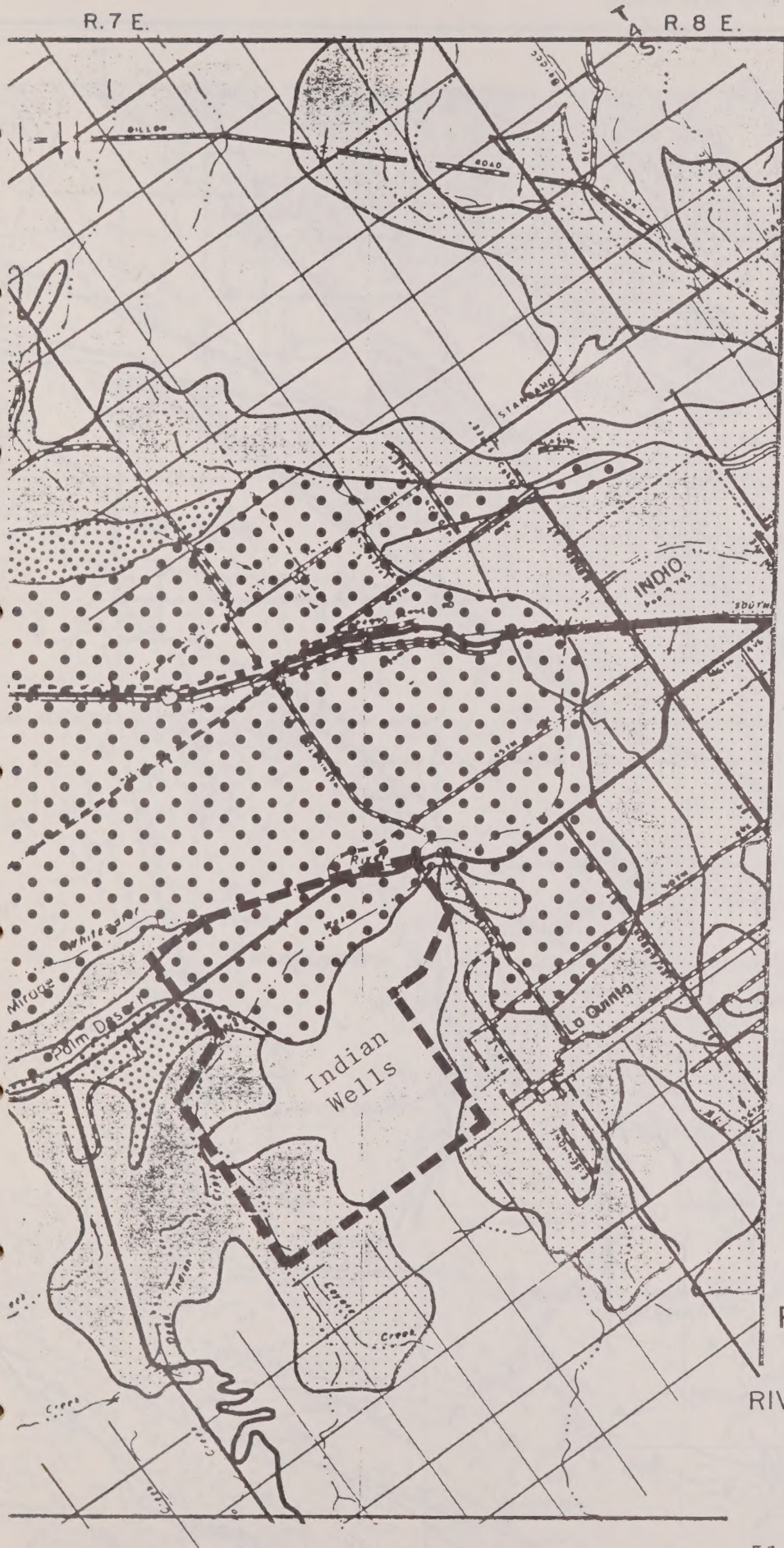
- 2) Wind Erosion - As material is water-deposited throughout the various watersheds of the Coachella Valley during flooding, it is picked up by winds and moved South and East during each windstorm. These high winds generally occur in the Spring and early Summer months. The damage caused by this acute problem falls into three general categories:
- (1) Abrasion to buildings, vehicles, etc.,
 - (2) Plugging of drainageways, culverts, bridges, etc., and
 - (3) Sand accumulation on roads, driveways, etc.
- In recent years the problem has become more severe due to the decreased amount of rainfall together with the increased amount of urban development. Construction which has taken place in the Valley, including the stripping of vegetation during the construction period, leaves areas highly vulnerable

to wind erosion.

It has been estimated by the Coachella Valley Soil Conservation District that 86% of the destructive winds blow toward the southeast. This is generally true, also, for the City of Indian Wells. The most severe wind erosion hazard exists in the northeastern portion of the City. This is because this area is relatively unprotected and has exposed soils. The area in the southwestern portion of the City has been developed to some extent with urbanization, agriculture, wind breaks, etc.; thereby alleviating much of the problem. EXHIBIT J indicates the wind erosion hazard for a portion of the Coachella Valley.

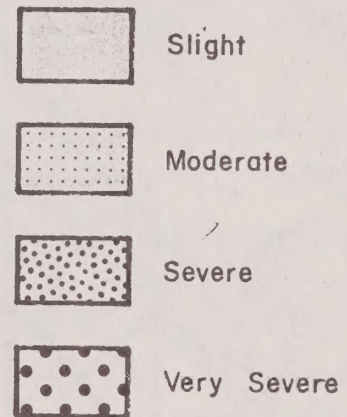
- 3) Earthquake and Faulting - The Coachella Valley is bounded by two major fault zones: (1) The San Andreas Fault zone on the northeast side and (2) the San Jacinto Fault zone along the southwest side. (See EXHIBIT K₁).

The San Andreas Fault zone lies approximately six miles northeast from the northmost City limits of Indian Wells. The San Jacinto Fault zone lies approximately fifteen miles southwest of the City, across the San Jacinto - Santa Rosa mountain range. A few smaller faults

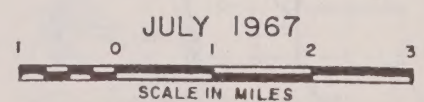


LOCATION MAP

LEGEND



MAP 12
WIND EROSION HAZARD MAP
PORTION OF COACHELLA VALLEY
WIND EROSION STUDY AREA
RIVERSIDE & SAN BERNARDINO COUNTIES
CALIFORNIA



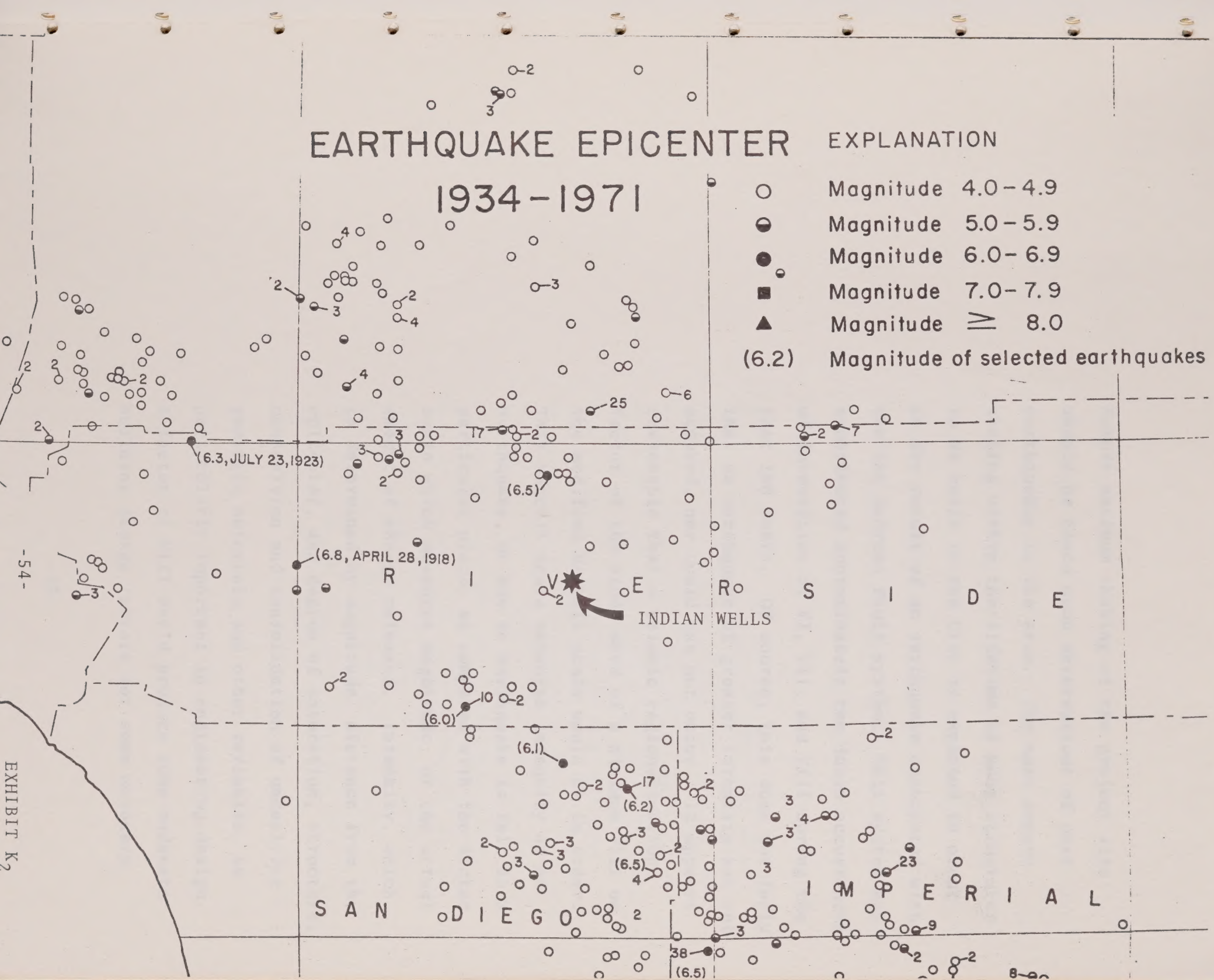
GEOLOGIC MAP OF CALIFORNIA SANTA ANA SHEET



lie between the San Jacinto Fault zone and the City. One such fault runs through the southwesterly portion of the City for a short distance. (See EXHIBIT A). The entire regional area is seismically active. In spite of the frequency of tremors, earthquake activity in the Indian Wells area has been slight. This is shown by EXHIBIT K₂, an epicenter map which indicates no major earthquakes in the area for the recorded period 1934 through 1961. The majority of the earthquakes shown are of an intensity of less than 5.0 on the Richter scale. This intensity does not constitute an earthquake of a destructive nature. The nearest epicenter of an earthquake with a recorded magnitude of 4.5 to 4.9 on the Richter scale was approximately 8 miles northeast of the City. The epicenter of any significant intensity (6.5) was registered southeast of Desert Hot Springs on December 4, 1948, approximately 15 miles North of the City limits. Based upon the most recent data presented, earthquake activity has been light, and the area can be considered relatively remote from major active sheer zones which could present a real potential danger.

EXPLANATION

1934-1971



○ Magnitude 4.0-4.9

● Magnitude 5.0–5.9

● Magnitude 6.0-6.9

■ Magnitude 7.0–7.9

▲ Magnitude ≥ 8.0

(6.2) Magnitude of selected earthquakes

(6.3, JULY 23, 1923)

(6.8, APRIL 28, 1918)

(6.5)

INDIAN WELLS

(6.0)

(6.1)

(6.2)

(6.5)

(6.5)

S A N

o D I E G O

I M P E R I A L

Future maximum shaking at the project site should be based upon observations of past earthquakes in the area. The most severe shaking within the lifetime of most structures to be built in the City is expected to occur as the result of an earthquake associated with the San Andreas Fault system. This system has experienced approximately two dozen occurrences of intensities of VI, VII, and VIII during the past 160 years. Of course, this does not imply that an earthquake of greater intensity has not occurred, nor could one not occur. It appears reasonable that a seismic regionalization factor of the study area of a minimum VIII on the modified Mercalli scale would be in order. This Mercalli scale measures intensity of an earthquake, or how an earthquake is felt in a particular place; as compared with the Richter scale which measures magnitude, or the actual amount of energy released. Intensity, which is determined by magnitude, distance from the epicenter, and degree of saturation, structure, composition and consolidation of underlying geologic materials and other variables, is particularly important in engineering design. A factor of VIII would produce some moderate building damage (severe for some masonry

buildings) and some disruption of water in wells, as well as ruptured pipes. No general panic situation (with surface ruptures) is expected in the developed area of the City; however, it is probable that loose boulders, rocks, and material lying on the steep foothills will be dislodged. Because of the geology of these foothills, no major landslides are anticipated.

- 4) Fire - Since in its natural state the desert supports very sparse vegetation, most of the Valley's fire hazard has been produced by man. The primary dangers within the City of Indian Wells include various structures and some poorly maintained agricultural operations, such as date gardens. Due to proposed policies and future General Plan implementation, these hazards are expected to be overcome. As the City develops, it is expected that adequate water flow for fire protection purposes will be installed and that more superior fire fighting forces will evolve.

2. Biological

- a. Regional Flora - A unique feature of the Coachella Valley is its variety of life forms, primarily due to each species adaptation to a particular type of habitat. Some natural species such as Creosote Bush and Mesquite have taproots which descend 30' or more to utilize moisture at lower depths. Other plants, such as cacti, develop a spreading network of surface roots so as to quickly absorb scant rainfall which occasionally falls in the desert. Some plants develop funnel shaped leaves to aid in delivering rainfall to their root system.

Intense summer heat and a prolonged growing season have also contributed to rather unique vegetative possibilities in the Valley. The Date Palm flourishes because of this very reason. Over 95% of the dates produced in the United States are grown in the Coachella Valley.

Typical of the Valley and foothills is the description expounded by R. Mark Ryan's book "Mammals of Deep Canyon, Colorado Desert." The life zones described are applicable to the study area and represent the successive nature of the habitats for this region. Three distinct life-zones are recognized: The Lower Sonoran, from sea level to 3,500'; Upper Sonoran, 3,500' to 6,300'; and Transition Life

Zone, from 6,300' to 8,000'. It should be noted that the "boundaries" between life zones and habitats are not distinct and that overlapping zones of change, commonly called "ecotones", exist and merge one zone with another.

The Indian Wells biotic communities fall within the Lower Sonoran Life Zone, although they are influenced by the other two zones as well. The Lower Sonoran Life Zone is further divided into four habitats: 1) Sand dunes and Creosote, 2) Creosote - Palo Verde, 3) Cholla-Palo Verde, and 4) Rocky Slopes.

- 1) Sand Dunes and Creosote Habitat - Constantly subjected to wind movement, the dunes habitat maintains, at best, a sparse vegetative cover; primarily of widely spaced Creosote Bushes. Occasional thickets of Mesquite are found primarily where water is near the surface.
- 2) Creosote - Palo Verde Habitat - Indigo Bush, Smoke Trees, and Burro Bush, together with the Creosote Bush and Palo Verde trees are common species to this harsh habitat.
- 3) Cholla - Palo Verde Habitat - This sand and gravel area supports Cholla and Darning Needle cacti. Water supply is limited to occasional

cloudbursts with much runoff; therefore, very little vegetation flourishes.

- 4) Rocky Slopes Habitat - Occasional Barrel Cactus or Creosote Bush is found here. A good deal of the mammal population is present, however; primarily attributable to natural shelter from intense heat provided by numerous rocks and crevices.

- b. Regional Fauna - The numerous desert animals have adapted themselves in many ways to cope with the desert environment. Animal species found and known to exist in the Valley are widely diversified in both populations and number of species, some of which are listed below.

- 1) Mammals - About three dozen species of mammals are found in the area. Many of these animals will utilize several or all of the different habitats described above. Some are important to the system of checks and balances. They include bats, rabbits, rodents, coyotes, foxes, skunks, and bobcats. Perhaps the most outstanding animal of this region is the Desert Bighorn Sheep (*Ovis canadensis nelsoni*), currently on California's rare and endangered wildlife list. They inhabit the Santa Rosa range and foothills lying to the southwest

of the Coachella Valley. Tracks, and occasional sightings, of these animals occur in the Indian Wells - Palm Desert area.

- 2) Amphibians and Reptiles - Numerous species live in all habitats of the Lower Sonoran Life Zone. They include the toads, tortoises, lizards, and snakes. Two species of rare and endangered lizards have been observed in the sand dune habitats of Indian Wells. These are the Coachella Valley Sand Dune Lizard or Fringe Footed Lizard (Uma inornata), and the other is the McCall's Horned Lizard (Phrynosoma m'callii).
- 3) Birds - Countless numbers and species of birds have been frequenting the Coachella Valley during seasonal migrations for centuries. In addition, numerous species of permanent residents are present. The more noticeable ones found include quail, hawks, doves, roadrunners, hummingbirds, wrens, mockingbirds, warblers, finches, and sparrows.
- 4) Insects and Arthropods - Typical desert dwellers include scorpions, crickets, spiders, beetles, butterflies, bees and a host of others which have adapted to the desert environment. These form an important link in the food chain.

- c. Local Wildlife - Field surveys were conducted during August and September 1973. The results, together with other known data, are described below and listed in APPENDIX 2. (See EXHIBIT L also).

SUMMARY OF FIELD NOTES:

- 1) Area A - Agricultural and desert areas North and South of the Whitewater Storm Drain from Point Happy to Cook Street, more or less.

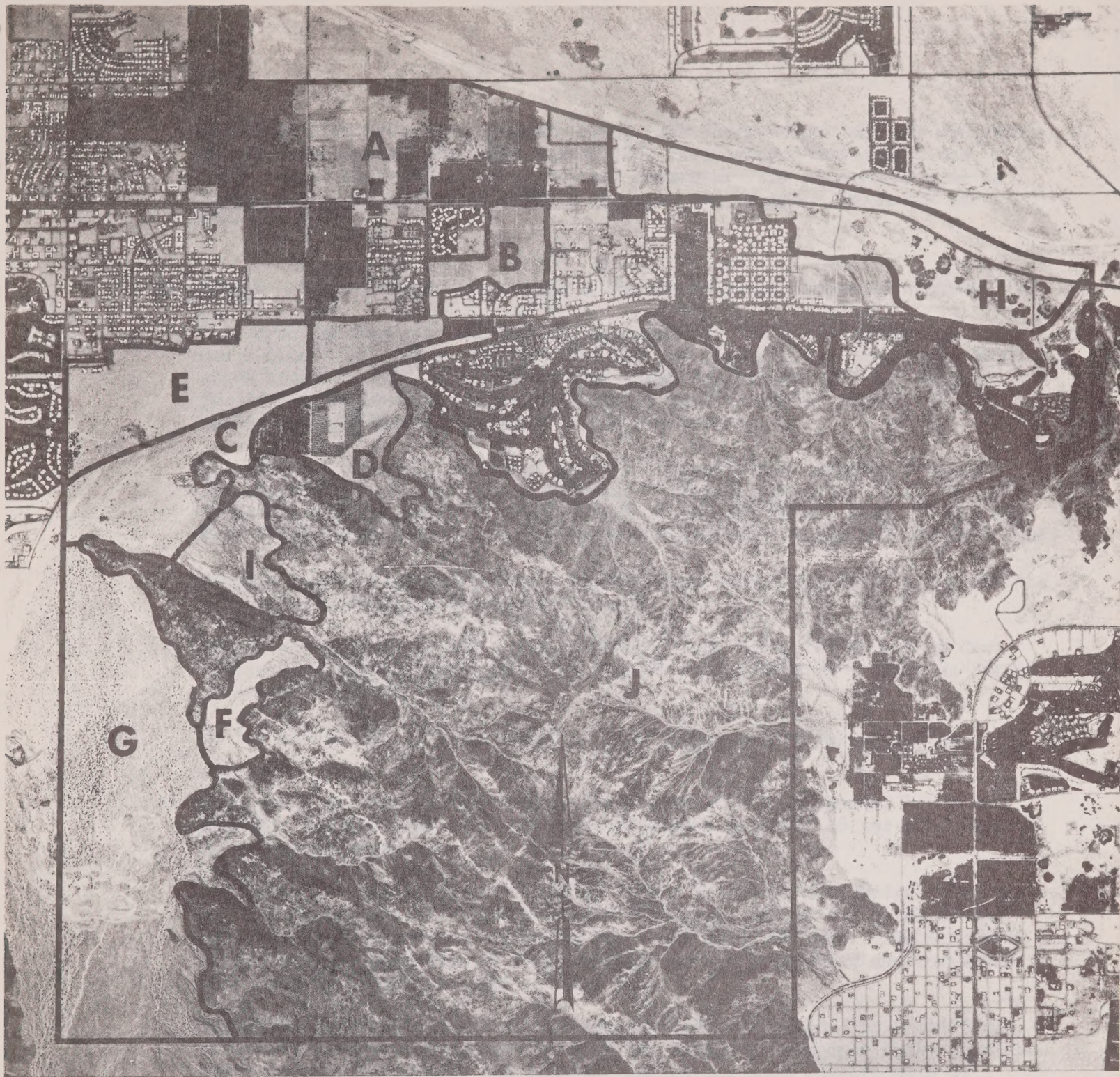
Mammals observed were: Round-tailed Ground Squirrel; Beechey Ground Squirrel, a large rodent whose distribution extends from Windy Point (Palm Springs) to Indian Wells and La Quinta; Jack Rabbits; tracks showing the presence of the coyote; Merriam's Kangaroo Rat; and the Desert Pack Rat, as well as certain desert mice.

Birds seen were: White-winged Dove trumpeting in nearby date gardens; Mourning Dove; Mexican Ground Dove; House Finches; Verdin in top of Date Palm; Cactus Wren; Ash-throated Flycatcher (tail reddish); Arkansas or Western Kingbird (tail black with white outer trimming), Abert's Towhee in a dense row of pomgranites; and a Western Red-tailed Hawk. Several large coveys of Gambel Quail were encountered.

Reptiles observed were: The Sand Burrowing snake (Chionactis annulatus), and the fresh tracks of the Sidewinder, Stansbury's Uta and the Desert Iguana or Crested Lizard. Others, probably to be found in the Spring, would include the Flat-nosed Horned Lizard and perhaps the McCall's Horned Lizard, preferring sandy areas, and the Western Diamond Rattler having a liking for Mesquite thickets.

The permanent natural vegetation consisted of dead, dying, and living Mesquite, usually in hummocks of drifted sand; occasional Creosote bushes; and isolated bushes of Long-leaved Saltbush (Atriplex canescens linearis); and Cattle Spinach. Seared skeletons indicated that in the Spring the following flowers were growing here: Sand Dune Primrose, Brown-eyed Primrose, Sand Verbena, two species of Desert Forget-me-nots, and perhaps a few rarer plants not seen in the short survey. Blue-Green Palo Verde (Cercidium floridum) were also noted growing.

Several date gardens and citrus groves are scattered throughout the area. The urbanized areas include a number of exotic species not native to the desert. The golf courses provide sources of surface water not normally found in the desert.



WILDLIFE AREAS

In the natural areas insects were rare. The chief insect was the ubiquitous Desert Grasshopper. One huge Myioid fly, black winged and with a red patch on the abdomen was seen, but not captured. Its scientific name is Mydus ventralis, and it is quite a rarity. The Creosote Woodborer was also present.

2) Area B - Manzo Vineyard just East of Rancho Palmeras, South of Highway 111.

This area was surveyed the morning of August 7, 1973. Ten years ago this was a beautiful, green vineyard; but now not much remains except the dead, stark stumps. Along the western side, just off Rancho Palmeras Road, a few living grapes grow from runoff of the streets and a leaking hydrant near a new addition to the Casa Dorado development.

Birdlife consisted of coveys of quail, a peregrinating Paisano or Road-runner, the ever present House Finches or Linnets, Mourning Doves, Mexican Ground Doves, two pairs of White-winged Doves (one on the East, one on the West side), Mockingbirds, and, perhaps, others such as the Spotted-neck Dove.

Mammals were: Coyotes (tracks), Round-tailed Ground Squirrel, and a Striped Skunk at the entrance to Rancho Palmeras.

The only insect noted was a large, bright, red, hairy Velvet Ant or Cow-killer (Dasymutilla satanas). Its species name indicates a sting as potent as a barb of Satan.

On the whole, the life sustained by this dead vineyard was practically nil.

3) Area C - A portion of Deep Canyon Storm Channel. This channel borders Eldorado Country Club on its North and extends westerly to the Deep Canyon spreading grounds area.

The storm channel is quite beautiful itself for those who admire Smoke Trees and desert scenery. It has developed this xeric beauty in, perhaps, the past decade or two since man built the storm drain and dam. The channelization and concentration of the runoff water has beautified and enlivened this area with various forms of life.

The plant life that adorns the contained wash is dominated by Smoke Trees, Blue Palo Verdes, scattered clumps of Cheese Bush, Sandpaper Bush, scattered clumps of Cattle Spinach and Dicoria; and on the sand itself, mats of Coldenia plicata and tiny leaved and flowering Euphorbia polycarpa, Six Weeks Grass, and Desert Trumpet (Eriogonum inflatum).

Annuals, now desiccated, indicated that this Spring the following ephemerals were growing in the large wash: Brown-eyed Primrose, two species of Desert Forget-me-nots, Sand Verbena, Desert Calico and others as well.

Birds frequenting the Storm Channel included: Roadrunner, coveys of Quail, House Finches, Verdins and Black-tailed Gnatcatchers twittering in the Smoke Trees, Cactus Wren, Mockingbirds, Mourning Doves, Mexican Ground Doves,

Grasshopper Falcons, White-rumped Shrike and others. In the Spring, when Smoke Tree and Indigo Bush (not previously mentioned) are in bloom, such an attractive channel would be alive with warblers, sparrows, hummingbirds, tanagers, and other Spring migrants working northwestward along the Coachella Valley Flyway.

Reptiles present included: Desert Iguana; Gridiron or Zebra-tailed Lizard, hiding in the coarse sands of the wash; Stansbury's Uta, Long-tailed Uta (Uta gracilis) which sleeps and lives in shrubbery; Flat-nosed Horned Lizard; Tiger Whip-tail Lizard; Giant Scaley Lizard; and the Banded Gecko, a nocturnal lizard that can squeal.

Snakes would include the Sidewinder, Red Racer, Long-nosed Snake (Rhinocheilus lecontei), Faded Snake (Arizona elegans), and the sand burrowing snakes of genus Chionactis.

Mammals frequenting the channel are: Coyote, Desert Gray Fox, Bobcat, Round-tailed Ground Squirrel, Antelope Ground Squirrel, Merriam's Kangaroo Rat, Striped Skunk, pack rat; and perhaps others that use the storm channel of Deep Canyon as ingress and egress to the central portions of the Valley.

Insects included: Desert Cicada, Desert Grasshopper and the Sandpaper Bush Grasshopper (Xeracris minimum) as well as Creosote Woodboring beetles, ground beetles such as Eleodes armata and Cryptoglossa verrucosa, both members of the Tenebrionidae or Darkling Beetle Family; and the strange blister beetle Cysteodemus armata found commonly in the Spring crawling over the desert surface.

4) Area D - Large canyon southeast of the citrus garden and polo grounds at the South end of Cook Street.

The upper reaches of this canyon has its origin in the South central portions of Section 27. The canyon is quite bouldery, like most precipitous desert canyons, with a fairly large central channel after several laterals join it. It is flanked on the East side by quite a gravelly bench of boulders and farther down by right and left hand benches which undoubtedly mark the old canyon bed millions of years ago in Pleistocene times when great floods swept down this canyon bouncing the boulders along like toys.

A great variety of desert plants was found in the canyon, such as: Desert Willow (Chilopsis linearis), Smoke Tree, Palo Verde, Catclaw, Creosote, etc., in the lower, more sandy, reaches. In the middle and upper reaches there were such plants as: Creosote, Catclaw, Cheese Bush, Burro Bush, Desert Sweet, Desert Lavender, Wand Sage (Salvia vasevi), White Ratany (Krameria grayi), Sandpaper Bush, Chuparosa, Indigo Bush, Bird of Paradise Bush, Encelia, Desert Trumpet, and Deer Horn and Beavertail Cactus. Ephemerals include the common array, such as: Brown-eyed Primrose, Forget-me-nots, Skeleton Weed, Desert Calico (Langloisia matthewsi), Little Trumpet, Brittle Spine Flower (Chorizanthe brevicornu), Yellow Turbans (Eriogonum pusillum - makes a beautiful reddish skeleton), Five Spot (Malvastrum rotundifolium), White Mallow, and many others. Just South of the citrus garden and against

the North base of the rocks, a considerable patch of accumulated drift sand held Sand Dune Primrose, Sand Verbena, Bottle Washer (Oenothera decor-ticans) and other rarer sand-loving plants.

The birds seen in the canyon included the Roadrunner, coveys of Gambel Quail, House Finch, Rock Wren, Mexican Ground Doves, Mourning Doves, Grass-hopper Falcon and, perhaps, a Pigeon Falcon (larger than the Grasshopper Falcon, with pointed wings).

Mammals observed and recognized by tracks: Coyote; Beechey Ground Squirrels, by sand dunes with dens under date palm logs; Antelope Ground Squirrels, in the canyon; Round-tailed Ground Squirrel; Merriam's Kangaroo Rat, by sand dunes; Jack Rabbit; Cottontails; Canyon Mouse; Cactus Mouse; Desert Pack Rat; and perhaps others, as well as certain species of Bats.

The more rugged reaches of the upper canyon were explored in the hope that the Barred Collared Lizard would be found, but even in the late evening the rocks were still so hot that probably only a Chuckawalla could tolerate them. No Barred Collared Lizard was seen or spotted, but a Chuckawalla was observed crawling into a rocky crack. It is possible that in the Spring of the year, the Barred Collared Lizard would be found inhabiting the rocky benches. Other lizards included the Tiger Whip-tail, with evidence of the Flat-nosed Horned Lizard, Arroyo or Zebra-tailed Lizard, Desert Iguana (in lower reaches), and the Banded Gecko. Higher up in the canyon and Santa Rosas the following lizards have been found: Mearns's Cliff Lizard, Henshaw's Spotted Night Lizard, and Abbot Gecko.

Snakes include the Sidewinder, Van Denburgh's Night Snake, and the Desert Mountain Speckled Rattler which was found in mid-July in a similar canyon on the West side of Palm Desert. On the flats at the mouth of the canyon you would find the Arizona Faded Snake (Arizona elegans) and in sandy areas you would find the burrowing snakes which are creamy colored with heavy black cross bands, less than one foot in size, with the diameter of a pencil. The Red Racer and Bull Snake would certainly tolerate areas around the citrus garden, where irrigation is frequent.

- 5) Area E - Arroyo or flood plain of Deep Canyon, between the South end of Cook Street and Portola; and between Fairway Drive and the North bank of the Deep Canyon Storm Channel (the Boyd properties).

This area of considerable acreage represents the Deep Canyon Flood Plain before channelization by the Coachella Valley County Water District was accomplished some years ago. The soil is sandy and sandy clay in its eastern sections and more gravelly towards the western end. Before channelization took place this area received infrequent flooding from the arroyos that rolled their waters out of Deep Canyon, more frequently in years prior to 1950. Channelization, however, cut off these storm waters of infrequent occurrence which kept the dominant vegetation healthy, with the result that the dominants and subdominants are in a dead or dying state at the present time.

The chief vegetation consists of Creosote, Cheese Bush, Burro Bush, and Indigo Bush. Whereas Indigo Bush was quite infrequent and showed few dead

bushes, Burro Bush and Cheese Bush showed more dead bushes than living and those living were often exhibiting only a few living sprigs coming out of the center of an almost dead plant. Creosote showed greater tenacity of life, few plants were completely dead, but many were mostly dead with only a few central shoots indicating the plant was alive. Often these clumps were large, showing that what remained was only a small portion of a one-time beautiful shrub. The effect of channelization and the year's recent drought were most drastic.

Annuals recognized by their remains were: Brown-eyed Primrose; Bottle Washer (*Oenothera decorticans*), very rare; Desert Calico; Sand Verbena; Pebble Pincushion; Spanish Needle (*Palafoxia linearis*); Sandpaper Bush; White Mallow (*Malvastrum exile*); and perhaps a few rarer ones. One Blue Palo Verde was found growing in the area.

Reptiles seen were the Crested Lizard or Desert Iguana, Tiger Whip-tail and evidence by tracks and droppings of the Flat-nosed Horned Lizard, Sidewinder, Sand Burrowing Snake, etc. The Leopard Lizard (*Gambelia w. wislizeni*) has been taken in Palm Desert, so it should be on this type of desert, which is the favored habitat as well for the Faded Snake (*Arizona elegans*). Also seen were Stansbury's Uta and the Long-tailed Uta. The Red Racer should be present under Spring conditions. A Roadrunner was seen with a Zebra-tailed Lizard in its bill, heading for the rocky ridge outcropping in this area.

Birds seen were the Roadrunner, Desert Quail, Mourning and Mexican Ground Doves, and House Finches. Earlier in the Spring many migrating birds cross over this area on their migrations. The area is also typical breeding grounds for the Texas Nighthawk (*Chordeiles texensis*).

Mammals of the area include: Coyote, Round-tailed Ground Squirrel, Antelope Ground Squirrel (on the rocky ridge), Beechey Ground Squirrel, Merriam's Kangaroo Rat, Jack Rabbit, and perhaps rarer visitors.

Insects included: Apache Cicada, Creosote Woodborers, Sandpaper Bush Grasshopper (*Xeracris minimus*) on or around its host plant, Desert Grasshopper, and in the Spring many other species of insects.

6) Area F - Hidden Valley and Palo Verde arroyo areas to the West.

The wildlife habitat in Hidden Valley on the E 1/2 of Section 33, a once lovely valley, was already mostly destroyed by August 1, 1973. A contractor was in the process of scraping off the top soil from the S 1/2 of the valley and transporting it a mile or so for fill and construction of golf greens around artificially formed ponds being created immediately on the North of the Deep Canyon Research Station (Ironwood C.C.). The only remaining wildlife areas of this desert valley were those boulder strewn portions lying immediately to the East of the scraped off and denuded areas and the huge and deep precipitous canyon that abruptly terminates Hidden Valley on its northeastern sector, the sides of which are almost perpendicular and the bottom at least several hundred feet deep. There are also some dry sand areas piled up against the southeast face of the

rocky mountain ridge that forms the northern edge of Hidden Valley.

Exploration was made in the upper end of that valley, hoping to find evidence, especially, of the very rare Barred Collared Lizard; however no sign of that lizard was seen in Hidden Valley or on those rocky mountain bases immediately to the South of Hidden Valley. This does not necessarily mean that the Barred Collared would not be found in the Spring, when conditions are more ideal. It has now been found in Chino Canyon and in three canyons to the West of La Quinta. Other lizards seen were: Chuckawalla, Stansbury's Uta, Tiger Whip-tail, Zebra-tailed Lizard, and the Crested or Desert Iguana. One Flat-nosed Horned Lizard was also seen in the late evening, perched on a rock by the side of the road. Springtime study would reveal many additional reptiles such as: Banded Gecko, Sidewinder, Burrowing Snake in sandy areas, Van Denburgh's Night Snake, Desert Mountain Speckled Rattler, Red Diamond Rattler which is found in nearby Deep Canyon, Red Racer and Bull snakes. At higher altitudes, in Sections 33 and 34, those lizards mentioned in Area D of this report would also be found.

The vegetation (that remained after scraping) of Hidden Valley included the following shrubs: Creosote, Burro Bush, Cheese Bush, Wand Sage, Sandpaper Bush, Chuparosa, Indigo Bush, Catclaw, White Ratany, Blue Palo Verde, Desert Sweet, Encelia, Desert Lavender, and perhaps others.

Annuals or ephemerals included: Desert Trumpet, Little Trumpet, Desert Buckwheat (*Eriogonum inflatum deflatum*), Thomas Buckwheat (*E. Thomasi*), Poisonous Phacelia (*Phacelia crenulata ambigua*) which blisters and scars arms and legs of allergic people, Brown-eyed Primrose, Bottle Washer, Desert Calico, Pebble Pincushion, Skeleton Weed, Forget-me-nots, Apricot Mallow (*Sphaeralcea ambigua*), and perhaps rarer ones not located. Three species of cacti were found: Beavertail Cactus, Deer Horn Cactus, and the Colorado Desert Barrel Cactus. Considerable black algae was noticed in places on clayey ground and on the North side of rocks.

Only a few birds were noted at the time of the survey; namely, Rock Wren and House Finches. In the Spring many other species would be found. Perhaps the denuding of the valley left little attraction, for not even a quail or roadrunner was seen.

Mammals included: Antelope Ground Squirrel, Round-tailed Ground Squirrel; and in the upper reaches and steep canyon walls undoubtedly occur such species as the Ring-tailed Cat, Bobcat, Pack Rat, Canyon Mouse, Cactus Mouse, Coyote, and other species. The Desert Bighorns may inhabit the higher, more inaccessible reaches of Section 34.

Insects also were limited at the time of the survey. The Creosote Wood-borers, Desert Cicada, and Desert Grasshoppers were all that were found. The dried remains of two Darkling beetles were found; namely, the Ironclad beetle and *Cerenopsis concolor*. Spring collecting would reveal many other species.

- 7) Area G - The Deep Canyon arroyo, immediately South of the Living Desert Reserve contained several features not found in any other area covered by the survey. The wash itself is unusually large as it carries the runoff of a very large and deep canyon, so named. In wet years there is more than ample waters to sustain the heavy vegetation, chiefly a forest of Blue Palo Verde trees of ancient vintage, as well as all the other associated flora. In addition to the fine stand of Palo Verdes we also find another arroyo tree, the Desert Willow. This willow can become quite a tree, as large and twisting as any great Mesquite tree. The Desert Willow (Chilopsis linearis) is a member of the tropical Bignonia family, and is the only member of this family to be found in the United States. It is not subject to attack from the parasitic Mistletoe (Phoradendron californicum) as are the Palo Verde and Mesquite. In wet years, when there is ample sub-surface water to feed the roots of the Palo Verdes, this tree can withstand the debilitating attacks of this parasite, which sucks the sap out of the limbs. Mistletoes probably kill more Mesquites and Palo Verdes than any other natural cause, especially in poor years when water for the roots is scarce. The amount of dead limbs and trunks around large, living Palo Verdes testifies to the destructiveness of this arboreal parasite. Associated with the Palo Verdes and Desert Willows are: Catclaw, Creosote, Chuparosa, Cheese Bush, Smoke Trees, Desert Lavender, Honey Sweet, Desert Sweet, Sandpaper Bush, White Ratany, Indigo Bush, and undoubtedly many others. All the annuals noted for Hidden Valley certainly would be found here in a good Spring, when rain and runoff has resurrected the plant life. The Climbing Milkweed (Funastrum hirtellum and heterophyllum) was noted as well as Coyote Melon (Curcubita Palmeri) and a longer survey would have added more to the list.

Bird life was not conspicuous at the time of the survey. Coveys of Quail, House Finches, a Black-tailed Gnatcatcher, a Roadrunner, and Mockingbirds were seen and others may have been present, but not observed. In a clump of Mistletoe the pendent nest of the beautiful Scott Oriole was found, indicating, surely, that there is considerable bird life in this sparse forest of Palo Verdes.

No mammals were seen, but the list would probably be the same as that for Hidden Valley, as well as for the Valley floor itself.

One large Desert Iguana was seen along with Zebra-tailed Lizards, Flat-nosed Horned Lizards, Stansbury's Uta, and the Tiger Whip-tail. No Giant Scaly Lizard was found, but big Palo Verdes with dead limbs usually represent a good habitat for the species. No snakes were encountered, but this should be a good location for the Red Racer, Bull Snakes, Red Diamond Rattlers, Long-nosed Snakes, and the Western Diamond Back, and others.

No insects were collected, but the insect fauna in the Springtime would be interesting and considerable.

8) Area H - Sand Dune areas between Balboa Bay Cove and Highway 111.

The Mesquite thickets and Mesquite and Creosote covered semi-stabilized dunes remaining after recent development in the Balboa Bay Cove area and East of the Sandpiper condominiums are not very large in size, but they are interesting and important. They mainly lie North of the Balboa Bay Club Cove and South of Highway 111 and Between Deep Canyon Storm Channel and the intersection of Highway 111 at Miles Avenue.

Another small sector lies North of Highway 111 and South of the Whitewater Channel and extends from the confluence of the Deep Canyon and Whitewater channels to approximately the western edge of the small date garden just West of the Erawan Garden Hotel.

This latter area was leveled several years ago by the Coachella Valley County Water District while changing and enlarging the Whitewater Storm Drain and has, in the meantime, grown up, almost exclusively, to a rather dense growth of Cattle Spinach. Directly North, across from the Erawan Garden Hotel, there is a drainage ditch that has cut deeply into the soft clay dirt to about fifteen feet in depth. This is now filled with a dense and quite gigantic growth of Quailbrush (*Atriplex lentiformis*), a species of Salbush with leaves like a lambsquarter plant. This is the only place in the areas surveyed where this plant was found. It grows commonly South of Mecca in saline soils.

Birds found in the survey included: Roadrunner, Mourning Dove, Mexican Ground Dove, House Finches, and in the very dense Quailbrush the rather rare Abert's Towhee was found.

North of Highway 111 no reptiles or mammals were seen during the short survey.

9) Area I - Very large bahada and canyon area in the Southeast 1/4 of Section 28 and the Northeast 1/4 of Section 33 (Fault Zone Canyon). A portion of this bahada formed at the mouth of what is called the Fault Zone Canyon is leased by the Living Desert Reserve. The Fault Zone Canyon cuts across and terminates abruptly the northeastern portion of Hidden Valley, which lies immediately to the southwest. The northeastern and eastern margins of the bahada are formed by steep granitic mountains. Northwest of the surveyed area is an extensive flat, gravelly-sand flood plain leading to Deep Canyon which, due to the dike at the North end, is gradually filling up with accumulated sands, gravels and some clayey silts.

Flora of the area: The plants found on the great bahada of the deep Fault Zone Canyon are similar to those listed for Areas 'D' and 'F'; and will contain all species found on the other bahadas, only in greater quantities due to its much larger size.

Fauna of the area: Likewise, we can say that the birds and mammalian fauna of the area are similar to those described in Areas 'D' and 'F'. The reptilian fauna revealed all species listed in Areas 'D' and 'F'. The size and location of this bahada has excellent prospects for revealing the

presence of the rare Barred Collared Lizard (*Crotaphytus insularis vestigium*), however, none were sighted. A survey should ideally be conducted in the Spring.

- 10) Area J - No extensive field survey was made in this mountainous area; however, it has been previously described in this report (See III A. 2. a.) as detailed in R. Mark Ryan's book "Mammals of Deep Canyon, Colorado Desert."

FLORA OF THE SAND DUNES

The permanent vegetation consists of Creosote, considerable clumps of Mesquite lying here and there in dune-protected hollows, Cattle Spinach and Saltbush. In the Fall of the year the Alkali Goldenbush (*Haplopappus acradenius*), like a glorious goldenrod, comes into full bloom and is most attractive to a considerable number of butterflies, bees and other insects.

In good Springs, when there has been sufficient winter rains to germinate the seeds of desert annuals, the dunes become very attractive with the large snow-flowered blooms of the Sand Dune Primrose, carpets of purple Sand Verbena, as well as Brown-eyed Primrose, Desert Gold (*Geraea canescens*), Pebble Pincushion, Spanish Needle and many other rarer ephemerals.

FAUNA OF THE DUNES

Bird Life:

The summer bird residents which tolerate the torrid temperatures are: Roadrunner, Gambel Quail, Mourning Dove, Mexican Ground Dove, Linnet or House Finch, Cactus Wren, and a few others.

In addition, Fall and Winter residents are: Audubon Warbler, Say's Phoebe, Gambel Sparrow, Chipping and Field Sparrows, Phainopepla, and feeding on the Mistletoe berries in the Mesquite thickets we may find the rare LeConte Thrasher, perhaps a Crissal Thrasher, and others as well.

During Spring migration many migrants work their way through the Mesquite thickets, now putting on their new green coat, such as: Palm Warbler, Bell Vireo, Western Flycatcher, Mockingbird, Western Kingbird, Ash-throated Flycatcher, Swainson and Gray-cheeked Thrushes, Black-tailed Gnatcatcher, Verdin, Ruby-crowned Kinglet, as well as many other rarer visitors.

Mammalian Life:

The innumerable tracks covering the sand surface of the dunes reveal the great variety of life that visits these dunes searching for food by day and night.

The tracks reveal the presence of Coyote, Desert Gray Fox, Jack Rabbit, Cottontail Rabbit, Round-tailed Ground Squirrel, Merriam's Kangaroo Rat, Desert Pack Rat, Desert Pocket Mouse and perhaps rarer visitors at times.

Reptilian Life:

Two very rare lizards, both considered endangered, live in these dunes. The first is the Coachella Valley Sand Dune Lizard or Fringe Footed Lizard (Uma inornata) also known as the Ocellated Lizard. It is very rare and the tracks of one were examined on the keel of the highest dune in the area under discussion. The other is the very rare McCall's Horned Lizard (Phrynosoma mcallii) which was actually found in the survey area. Other lizards include the Tiger Whip-tail, the Desert Iguana, Stansbury's Uta, Giant Scaley Lizard in the Mesquite thickets, and the Banded Gecko.

Snakes include the Sidewinder, Sand Burrowing Snake (tracks fairly common), Faded Snake, Red Racer, Bull Snake, and possibly a rare Western Diamond-backed Rattler in the Mesquite thickets, their favorite habitat.

Arthropod Life:

Arthropods are jointed-legged creatures, such as Scorpions, Solpugids or Sun-spiders, and spiders; all of which are not insects because they all possess more than three pair of legs. They appear to thrive on the deserts of the world. Many species, especially in the northern Sahara in Algeria, Africa, have venom which is more lethal, drop for drop, than any of the African Cobras including the much-feared Green Mamba.

Three species of scorpions live on these dunes, namely the Giant Hairy Scorpion (Hadrurus arizonensis pallidus) which William C. Stanley named in 1971 as a new species, having been known as H. hirsutis (a Mexican species) for a hundred years. The second scorpion is the Sand Dune Scorpion which Dr. Stahnke named a new species in 1967 as Paranurctonus mesaensis, named after the city of Mesa, Arizona. To those sensitive or allergic to stings this scorpion packs a very painful, but not deadly, sting. The third species is a much smaller scorpion belonging to the genus Vejovis and probably the species wapatkiensis Stahnke. Solpugids, which are also called anteaters because they feed on the painful stinging Harvester ants of the genus Pogonomyrmex, are identified (with great difficulty) mainly by the dentition on their peculiar pair of jaws. Some Arabian solpugids are larger than our largest Tarantula spider and feed on deadly Anuroctonus scorpions in Israel and North Africa. Many genera and species occur in our desert. Twenty-Nine Palms has at least six kinds. Two species have been found on the dunes under discussion, namely Therobates imperialis (named after Imperial Valley) and Eremobates californicus. There is no information readily available with regard to spiders that may have been collected or studied from these dunes.

Insect Life:

In October quite a few species of desert butterflies are attracted to the golden heads of Alkali Goldenbush. Some of these are: Yellow Sulphur (Colias eurytheme), Fiery Skipper (Hylephila phylaeus), Sand-hill Skipper (Polites sabulati), Dusky-winged Skipper (Thanoas tristis), Common Checkerspot Skipper (Hesperia communis), and the Nessus Skipper (Calotes nessus).

Grasshoppers include the Desert Grasshopper and the Saltbush Grasshopper (Anconia integra).

Beetles represent the Darkling Beetle Family (Tenebrionidae) which is found all over the deserts of the world. Those found here include: the Pinacote (Eleodes armata - stands on head when disturbed), the Rough Darkling (Cryptoglossa verrucosa - clayey areas near dunes), Smooth Darkling (Cryptoglossa concolor - most common sand beetle found in the area), the Squeaker (Edrotes ventricosus - shining black and hairy. Squeaks when picked up), and two unnamed beetles, Trichiasida acerba and Pelecyporus sp.

Also, in the summer time the Creosote Woodborers come out of their host plants. Other insects include the shining green spider wasp Chlorion cyaneum, and a considerable variety of bees and wasps which visit the Mesquite when in yellow catkins in the Spring.

During a wet Spring, the Coachella Valley Giant Sand Treader Camel Cricket (Macrobaenetes valgum) is common at night on the desert dunes. Another rarer Camel Cricket is known as Ceuthophilus fossor.

3. Man Made

- a. History and Archaeology - Archaeological studies in Western North America have placed much emphasis on probable cultural adjustments to changing environmental conditions. Studies are made difficult by inadequate understanding of the magnitude of climatic changes affecting natural food resources. It is therefore desirable for purposes of observing cultural adjustments in changing environments to control the setting in significantly non-climatically induced environmental change. The Salton basin of southeastern California experienced a rapid change from lacustrine to desert conditions in the absence of significant climatic change late in prehistoric times. Cultural adjustments made by resident populations at that time in response to gross environmental deterioration appear to have involved economic innovation and the drastic re-structuring of settlement patterns. Effects of these adjustments have been wide spread in interior Southern California.

- 1) Salton Basin - The Salton Basin comprises the northern portion of the Salton trough, and is separated from the Gulf of California on the South by the delta of the Colorado River. (See EXHIBIT M). Prior to innundation by the Salton Sea (1905 - 1907), the floor of the Basin was a playa in excess of 260' below sea level. The Salton Basin is one of the driest regions in North America. It lies within the distributary system of the Colorado River, and throughout at least the late quaternary the river has, from time to time, discharged its waters into the Basin. This probably occurred countless times during the annual Spring flood of the Colorado. For the most part, these waters resulted in the formation of transient saline lakes in the Salton Sink, and these have been observed on several occasions during the historic period. Such lakes usually lasted only a few years before evaporation reduced them to small salt marshes or dried them completely. At other times, the entire discharge of the Colorado emptied into the Basin for prolonged periods of time. Whenever this occurred, the surface elevation of the resultant lake rose to about 40' above sea level, at which point overflow occurred across the Colorado Delta into



the Gulf of California by way of the Hardy River. This factor is very significant in that the areas of Bermuda Dunes, Indian Wells, and La Quinta are within walking distance of this ancient lake. The lake, generally known as Lake LeConte, was in excess of 110 miles long and had a maximum depth of about 328'. In contrast to most of the larger lakes which have existed in arid regions of Western North America, Lake LeConte was throughout most of recent time a fresh water body that assumed saline conditions only during advance stages of recession. Beach and other associated shoreline features are well marked around most of the Basin, except at the extreme southern end where they tend to be obscured by delta formation.

Lake LeConte has a rather long, complex, and incompletely understood history. At some point in the early centuries A.D., a recent lake forming stage began which was interrupted at least once and perhaps more by periods of partial or total recession. Recession was primarily a result of the re-routing of the Colorado River across its deltaic cone. A low water level, and possibly a complete recession of

the lake, is indicated by petroglyphs into tufa deposits at several locations well below the main shore level. Petroglyphs appear to have been subsequently innundated as indicated by the renewed deposition of tufa within the carvings, but appear to be of comparatively recent age and probably date from the next to last recession. Since Lake LeConte was fed by the Colorado River and had an outlet to the sea, its biota was essentially similar to that of the river. These resources included fishes of several species and a variety of mollusks, including the fresh water mussel, Anodonta californiensis, which occurred in great abundance. The present Salton Sea, a highly saline body, comprises one of the major focal points of the Pacific flyway; which suggests that the aquatic avifauna of Lake LeConte was also a significant natural food resource. The fact that many species of aquatic birds nest on the Salton Sea indicates also that this potential food resource was not strictly seasonal. To this list can be added a large number of aquatic plants, insects and terrestrial vertebrates. Access to nearby montane plant communities with groves of pinion and oak was also readily available from much of the western shore. Published studies of the aboriginal

occupation at Lake LeConte are few. A few authors describe rock enclosures in the Coachella Valley called "fish traps" in local Cahuilla Indian tradition. Some concluded that they were either house remains or antelope blinds. A few writers described inundated petroglyphs at Travertine Point, previously mentioned, and a number have reported on various aspects of local pre-history; but no detailed studies of the lakeside adaption or the cultural adjustments which accompanied the final recession of Lake LeConte have been made. Some current research is being undertaken in the northern end of the Salton Basin (Coachella Valley) which will permit a preliminary assessment of lacustrine adaption at Lake LeConte and of the adjustments which accompanied the recession of the lake in late prehistoric time. The region around the northwest end of the lake is marked by extensive shoreline dunes, with abundant evidence of occupation. Survey data suggests that the western shore of the lake was much more intensively occupied than the eastern shore, a factor apparently due to the distribution of food resources in adjacent mountains. Fish remains occur in abundance

in the shoreline middens and attest to the importance of fishing in the subsistence economy. Shallow shell middens, consisting almost exclusively of Anodonta californiensis, occur locally and aquatic avifauna is well represented in the occupational refuse. Only minor excavations have been conducted to date, but survey data indicates a heavy reliance on water resources. The duration of occupation and size of the populations cannot now be estimated, but available evidence suggests both very dense and sedentary occupation categorized the most recent lake stand. An evaluation of radio carbon evidence weighed against early historic documentation suggests that Lake LeConte receded from the Salton Basin around 400 to 500 years ago. Recession occurred when the Colorado River ceased its flow into the Basin and resumed its historic pattern of direct discharge into the Gulf of California. Historic records indicate that the river was subject to flowing in any of several channels across its delta, and thus the conditions which initiated the formation of the lake brought about its recession. With no steady flow of water entering the basin, the extreme evaporation of the Colorado desert would have

immediately started a reduction of the lake. Records on the early recessional trend of the Salton Sea from 1907 through 1912 indicate that the actual elevation loss of that Sea by evaporation alone was about five feet per year. Since the final recession of Lake LeConte occurred under essentially similar climatic conditions its rate of decline was probably very similar. A few other scholars suggest a rate of about ten feet per year for the recession of Lake LeConte. At a number of places around the Salton Basin recessional shorelines of the extinct lake are marked by numerous rock structures, which are apparently fishing weirs, and extend intermittently for several miles. Whether or not the, thus marked, shorelines document an annual progression has not been positively determined. cursory measurements indicate that the difference in elevation between the rows of structures compares favorably with the predicted annual rate of recession, and detailed analysis is currently in progress. Further examination of the rocks which make up the weir-like structures has not revealed evidence of renewed tufa deposition since their placement and it thus appears that the structures document a recession which was both rapid and

uninterrupted at least during the first 160 feet of surface elevation loss. If the entire recession of Lake LeConte occurred in an uninterrupted sequence, a nearly complete erasure of the lake-oriented resource complex would have occurred within about 50 years. If the fish populations of Salton Basin died off in a similar manner as Lake LeConte was receding, and there is reason to believe they did, the effect on an already severely stressed human population must have been catastrophic.

By early historic time the ancient lake bed in the northern portion of Salton Basin, now known as Coachella Valley, was densely populated by the desert branch of the Shoshonean-speaking Cahuilla Indians. The Cahuilla pursued a broad pattern of exploitation of desert resources with particular emphasis on Mesquite, and cultivated a variety of crops. They occupied about a dozen permanent villages on the lakebed near springs, or at hand-excavated walk-in wells. Such a hand-excavated walk-in well was believed to exist at the site of Indian Wells. The southern end of the Salton sink was less densely populated by the Yuman-speaking Kamia who cultivated, on a rather

opportunistic basis, the flood plains of the New and Alamo Rivers. The Kamia settlement seems to have been less stable than that of the desert Cahuilla, possibly due in part to the strong emphasis on flood water farming, which in turn was intimately linked to overflow in the Colorado delta. When the necessary floodwaters were available, the Kamia appeared to have been strongly agricultural; at other times they apparently reverted to more strictly hunting and gathering, and abandoned much of the interior Colorado desert.

- 2) Cultural Adjustments - It seems almost certain that the settlement patterns in Salton Basin occurred at least in part as a response to a severe stress situation, which accompanied the dissipation of Lake LeConte. It seems also reasonable to suggest that parallels may exist between the cultural adjustments to gross environmental change in Salton Basin and adjustments to other examples of deteriorating environments, notably those resulting from climatic changes over long periods of time. Available evidence suggests that resident human populations who had adapted to the abundant water resource complexes were compelled to

totally restructure the settlement and subsistence patterns, probably within the span of no more than two generations. Probable cultural adjustments exercised by the aboriginal populations in the Salton Basin include the following:

- 1) a pronounced broadening of the subsistence base and evolution of a pattern of diversified plant collecting, with a change from a sedentary pattern to one involving both sedentary and seasonally nomadic;
- 2) out-migration from Salton Basin to adjacent riverine, deltaic, and montane environments which did not undergo resource decimation;
- 3) environmental manipulation in the form of plant cultivation; and
- 4) participation in far-reaching economic interaction systems.

- 3) Local Aspects - The City of Indian Wells provided a natural setting for the desert Cahuilla for several reasons: 1) its proximity to the shoreline of Lake LeConte (2 - 3 miles); 2) geology combined with the hydraulic gradient of the Upper Valley produced water near the surface and allowed shallow hand-excavated wells to be dug; 3) the rock projection of "Pt. Happy" at the eastern boundary of Indian Wells provided an excellent look-out over the Coachella Valley

for many miles; and 4) its proximity to the nearby mountains and vegetative resources.

Indian Wells is an old and well documented name on the earliest maps of California. In 1856, in a geological report made in connection with the railroad survey of R. S. Williamson, a man named Blake recorded a well at Indian Wells called Pozo Hondo (Deep Well) which was 25' deep excavated in clay at the base of a high sand dune. In 1823, the Estudillo-Romero expedition to the Colorado River (unsuccessful) noted a well which they called "Gauloma" at Indian Wells. This well was six veras (16 feet) deep. The U.S. Government survey in 1856 recorded an Indian village at Indian Wells. The well was called "Palma Seca" (dry palm), in this village.

Although the entire City may once have been a very large Indian village, there are areas within the City which appear to have a greater degree of interest to archaeologists. The Open Space and Conservation Elements have indicated areas of particular archaeological significance within the City.

b. Population - Until recent times, the climate and scarcity of water in the Coachella Valley has severely limited economic and population growth. It was not until shortly after the turn of the century that economical well drilling methods and pumping machinery made cheap water possible and permitted the first surge of population growth. Population again accelerated when Colorado River water was introduced into the Lower Coachella Valley by means of the Coachella branch of the All-American Canal in 1948. The completion of the canal resulted in rapid increases in irrigated farming and a commensurate rapid increase in population.

While the population growth in the Lower Coachella Valley was largely due to agricultural development, the growth in the Upper Valley has been the result of resort activities. In 1940 the population of the Upper Valley was about 4,000. After World War II rapid growth occurred, with the population nearly doubling each decade. The entire Coachella Valley experienced a population growth from 12,000 in 1940 to over 100,000 in 1972. Several population forecasts have been projected by various consultants throughout the last two decades. The most recent by Riverside County

indicates a 1990 population ranging from 139,500 to 164,000. Projections which were made in 1971 have already proven to be too low. However, it must be remembered that these are projections for permanent population. In the Upper Coachella Valley there is a large seasonal population which is not counted in the permanent census figures. In 1971 in the Cove Communities area, alone, the seasonal population represented 40% of the total. Recent indicators have shown that the percentage of second and third home owners has increased significantly in the upper portion of the Valley. New technology, mobility, and affluence is increasing and one can only speculate as to the population projection in 1990 and 2000 A.D. It is evident, however, that growth is continuing to occur in the Upper Valley despite some slowdowns in other portions of Southern California.

The present permanent population of the City has been estimated at 1,200 persons. The projection of trends would indicate that total development in the City would probably not occur until after 1990; and the probable overall average effect would produce 15,400 residents.

- c. Land Use - Land uses in the Upper Coachella Valley exhibit much diversity. However, the primary land use of developed lands is tourist-recreation oriented. A major portion of this development has occurred, and is continuing to occur, in a continuous belt of development hugging the foothills from Indio to Palm Springs. Except for the Desert Hot Springs and Thousand Palms area, most land lying in the center of the Upper Coachella Valley is vacant.

Approximately 1,700 acres of potentially developable land lies within the City. Densities allowed by the General Plan and zoning would limit development to residential uses.

- d. Zoning and Proposed Land Use - Several General Plans have been adopted in the Coachella Valley during the last two decades. These include the Desert Hot Springs General Plan, the Palm Springs General Plan, the Cove Communities General Plan, the Indio City General Plan, the Coachella-Thermal-Indio General Plan, and the County's General Plan (1965). In addition, valley-wide, the County has adopted an Open Space Element, a General Plan of Streets and Highways, and a Recreation Element. The County, as well as various cities, are currently engaged in bringing their zoning into consistency

with these adopted General Plans. Further, the recently formed cities of Rancho Mirage and Palm Desert are currently studying and up-dating their General Plans and zoning.

e. Economics

- 1) Regional - The mainstay of the economy in the Coachella Valley is agriculture and tourist-recreation. Both benefit from the arid climate and the mild winter temperatures. The Valley, from Indio South, is heavily farmed, with irrigated acreage rapidly expanding following the extension of the Coachella Canal into the Lower Valley in 1948. The Upper Coachella Valley, including Desert Hot Springs, Palm Springs, and the Cove Communities, contains many recreation and/or retirement-oriented resort areas with growth rates steadily increasing since World War II. Agricultural production in the Upper Valley, although significant, is not nearly as large as that of the Lower Valley.

In the Lower Valley, alone, agricultural production for 1972 totaled \$83 million. Of this total fruits, including citrus, grapes, and dates, amounted to \$46.4 million; livestock \$15.9 million; and vegetables \$17.1

million (See EXHIBIT N). Over 99 percent of the nation's date production comes from the Coachella Valley. Indicative of the economy of the Upper Valley are the 32 golf courses (5 more under construction) and 354 hotels (Riverside County Department of Development, 1972).

EXHIBIT O₁ presents Coachella Valley employment as of July 1969 and shows a comparison of types of employment in the two portions of the Valley. Date and produce packing and shipping are primary employers in the Lower Valley; while hotel, restaurant and related services are the primary employers in the Upper Valley.

Selected economic indicators for Palm Springs and Indio reveal the growth which the area is experiencing. (See EXHIBITS O₂ and O₃). Between 1963 and 1972 assessed valuation increased 68 percent in Palm Springs and 101 percent in Indio; taxable sales increased 105 percent in Palm Springs and 127 percent in Indio; building permits increased 300 percent in Palm Springs and 118 percent in Indio; and telephone increased 130 percent in Palm Springs and 71 percent in Indio (Palm Springs Life, 1972).

Farm, Livestock Totals

(1972 calendar year figures for Coachella Valley lands irrigated with Coachella Canal water)

Value of year's farm production	\$67,015,988
Total livestock value	\$15,895,391
Total for 1972	\$82,911,379

Crop	Acreage	Yield	Per acre value (*)	Total
Fruits	28,142			\$46,385,651
Dates	3,384	16, 378 tons	\$2,754	9,319,082
Grapes	7,568	3, 980,768 lugs	2,957	22,376,928
Grapefruit	7,750	5,231,250 cartons	1,307	10,127,002
Lemons and Limes	1,941	355,203 cartons	566	1,098,101
Misc. Citrus	92	27,692 cartons	703	64,642
Oranges, Valencia	2,216	522,976 cartons	225	498,359
Tangelos	875	329,000 cartons	625	546,761
Tangerines	3,116	1,018,932 cartons	561	1,747,636
Temples	1,200	553,200 cartons	506	607,140
Vegetables	15,106			17,092,126
Asparagus	1,165	78,055 crates	739	860,912
Beans	218	45,344 crates	1,659	361,745
Broccoli	31	2,728 cartons	871	27,011
Cabbage	80	76,400 cartons	2,544	203,520
Cantaloupes	13	143 crates	45	585
Carrots	5,360	2,213,680 sacks	1,544	8,277,019
Corn	4,941	839,970 crates	507	2,504,790
Cucumbers	24	5,784 lugs	600	14,394
Eggplant	226	203,626 cartons	2,246	507,628
Endive	58	25,752 crates	1,726	73,988
Lettuce	187	110,143 crates	2,247	420,226
Okra	120	130,560 lugs	3,489	418,752
Onions, dry	110	74,250 sacks	1,995	219,454
Onion, green	212	342,380 crates	4,802	1,017,918
Parsnips	301	90,300 crates	510	153,510
Peas, green	28	5,600 lugs	2,200	61,600
Peppers, Bell	375	50,250 cartons	700	262,500
Peppers, Chile	42	17,640 lugs	1,935	81,275
Radishes	462	106,722 bags	602	278,045
Squash	652	239,936 lugs	1,272	829,839
Tomatoes	28	6,608 trays	588	16,450
Turnips	421	250,074 lugs	892	375,742
Vegetables, misc.	52	25,584 crates	2,408	125,022
Misc. Field Crops	2,887			669,069
Cotton Lint	2,887	4,330.5 bales	210	606,270
Cotton Seed	2,887	1,210 tons	22	62,799
Forage	7,607			1,393,051
Alfalfa Hay	3,364	22,404 tons	266	896,160
Sudan Oats	1,046	4,184 tons	160	167,360
Irrigated Pasture	3,197	9,910.7 aum	103	329,531
Cereals	543			53,135
Barley	119	11.6 tons	74	8,854
Milo	46	55.2 tons	61	2,809
Safflower	108	162 tons	169	18,306
Wheat	270	540 tons	86	23,116
Total Nursery				1,393,899
Seeds	184			18,400
Alfalfa	184	3,800 lbs.	100	18,400
Nuts	34			10,657
Pecans	34	173 cwt.	313	10,657

(*) Cents were omitted from these totals in the interest of space.

COACHELLA VALLEY EMPLOYMENT - JULY 1969

Employment Category	Labor Market Area		Total Coachella Valley
	Palm Springs- Desert Hot Springs	Indio- Coachella	
Agriculture, forestry, fishing	100	300	400
Mining	---	200	200
Construction	1,300	450	1,750
Manufacturing	300	750	1,050
Transportation, communications, utilities	1,000	850	1,850
Trade	3,500	3,200	6,700
Finance, real estate, insurance	700	450	1,150
Services	5,800	2,250	8,050
Government	<u>2,300</u>	<u>2,450</u>	<u>4,750</u>
TOTAL	15,000	10,900	25,900
ESTIMATED POPULATION	48,089	38,924	87,013

Source: California Department of Human Development as cited in
Riverside County Department of Development, 1972a, 1972b,
1972c, and 1972d.

COACHELLA VALLEY - SELECTED ECONOMIC INDICATORS

<u>Indicator</u>	<u>Year</u>	<u>Palm Springs</u>	<u>Indio</u>
Assessed valuation *	1963	\$140,557,145	\$16,135,960
	1964	150,642,110	17,881,225
	1965	167,027,148	19,845,139
	1966	178,886,321	21,563,470
	1967	184,350,000	23,269,600
	1968	190,458,830	26,486,760
	1969	192,171,262	27,605,040
	1970	203,171,786	31,250,948
	1971	216,836,639	33,500,000
	1972	236,028,729	32,470,785
Taxable sales	1963	\$ 59,884,000	\$ 35,956,000
	1964	62,777,000	40,842,000
	1965	67,728,000	42,136,000
	1966	71,314,000	---
	1967	74,946,000	---
	1968	83,686,000	49,163,000
	1969	89,688,000	56,687,000
	1970	92,761,000	61,476,000
	1971	103,272,000	68,885,000
	1972	122,650,000	76,672,000

* Palm Springs School District

SELECTED INDICATORS (continued)

<u>Indicator</u>	<u>Year</u>	<u>Palm Springs</u>	<u>Indio</u>
Building permits	1963	\$ 13,798,636	\$ 6,433,215
	1964	22,835,590	5,557,794
	1965	19,075,224	5,191,609
	1966	14,359,746	8,341,162
	1967	9,622,958	2,290,832
	1968	8,882,863	3,712,910
	1969	13,464,364	6,423,678
	1970	12,330,629	6,205,871
	1971	20,959,860	1,793,902
	1972	55,233,883	14,050,342
Telephones	1963	18,459	7,186
	1964	25,989	7,977
	1965	27,059	8,691
	1966	27,413	9,464
	1967	28,993	10,178
	1968	32,268	10,635
	1969	36,465	11,118
	1970	38,439	11,417
	1971	40,713	11,767
	1972	42,500	12,290

Source: Palm Springs Life - Annual Desert
Progress Issue: 1972-73, September 1972.

The entire Coachella Valley has undergone an extended period of growth spurred both by increased agricultural water supply and by demand for resort activities. Since 1971 the rate of growth has accelerated substantially above that experienced during the 1960s. Over 10,000 building permits were granted in the Upper Coachella Valley during 1972. Whether this acceleration is indicative of a new trend or just a temporary surge is open to conjecture. Residents of Upper Valley communities, particularly Palm Springs, are beginning to question the value of the building boom, primarily because it is bringing some undesirable metropolitan manifestations (Palm Springs Life, 1972). This concern, plus a possible oversupply of dwelling units in Palm Springs, may reduce the magnitude of this recent boom. Nonetheless, the potential for continued acceleration of growth remains.

- 2) Local - Various aspects of financial significance have recently (Summer 1973) been published by the City under a Sewer Bond report prepared by Bartle Wells Associates. Portions of that report are included as EXHIBITS P₁ through P₄.

CITY FINANCIAL DATA

City revenues and expenses are shown in the accompanying table. The first three years are from city audits and the final year from the 1972/73 budget. Revenues and expenses are shown for the general fund, from which all general government is administered, and for the two special funds.

Revenues are derived from three main sources. They are: room taxes, building permit fees, and sales and use taxes. These three sources of revenue accounted for 61 percent of revenues for the year ended June 30, 1972.

Property taxes accounted for four percent of the city revenues, or \$8,642.62 in 1971/72.

The city's major expenditures are for salaries, sheriff's services, and public works. Indian Wells has budgeted \$22,667 for the county sheriff's patrol for the 1972/73 fiscal year. This policy enables the city to purchase adequate protection without adding to city personnel. An expenditure of \$84,600 in the city budget for the current year is for acquisition of the new city hall, and for its modification and maintenance.

The city has joined the Regional Anti-Pollution Authority to which it contributed \$2,835 for 1972/73. RAPA is a political group working toward environmental quality, and is comprised of the four member cities of Indian Wells, Palm Springs, Indio and Desert Hot Springs.

Residents of the City of Indian Wells pay the lowest taxes of any incorporated city in Riverside County. The tax rates, by code area, are shown below. Only \$0.05 per \$100 of assessed valuation is paid to the city. The county receives \$2.995 per \$100 assessed valuation. The balance is allocated to school, water, and other special districts.

The city comprises three tax code areas as shown to the right.

Tax Code Area	Assessed Valuation 1972/73	Percent of City Total Valuation	Tax Rate Per \$100 Assessed Valuation
16-00.....	\$ 1,564,000	8.9%	\$ 9.778
16-01.....	615,210	3.5	10.017
16-02.....	15,424,459	87.6	9.778
	<u>\$17,603,669</u>	<u>100.0%</u>	

1972/73 tax rates were uniform throughout the city except that Tax Code Area 16-01 participated in the Desert Hospital District.

Valuations shown are net of all exemptions. Exemptions for homeowners and business inventory are added back to increase the value to \$17,760,817, the figure used for purposes of tax rate computation.

CITY OF INDIAN WELLS TAX RATES BY CODE AREA

	Code Area 16-00	Code Area 16-01	Code Area 16-02
County	\$2.995	\$2.995	\$2.995
City	0.050	0.050	0.050
Schools(Desert Sands Unified School District) ..	5.925	5.925	5.925
Other special districts.....	0.209 ^①	0.448 ^②	0.209 ^③
Water agencies	0.599	0.599	0.599
Combined tax rate.....	9.778	10.017	9.778

① Coachella Valley Public Cemetery.....	\$0.0120
Coachella Valley Mosquito Abatement District.....	0.0970
Coachella Valley Recreation and Park District.....	0.1000

② Above plus:	
Desert Hospital	\$0.2040
Desert Hospital Debt Service.....	0.0350

CITY OF INDIAN WELLS 1972/73 ASSESSED VALUATIONS

	State Assessed	Local Assessed	Total Secured	Unsecured	Total
Land	\$ 3,490	\$ 7,556,813	\$ 7,560,303	\$ —	\$ 7,560,303
Improvements	148,210	9,324,107	9,472,317	108,506	9,580,823
Personal property	292,410	172,388	464,798	164,893	629,691
Total	<u>\$444,110</u>	<u>\$17,053,308</u>	<u>\$17,497,418</u>	<u>\$273,399</u>	<u>\$17,770,817</u>
Less other exemptions	—	10,000	10,000	—	10,000
Total*	<u>\$444,110</u>	<u>\$17,043,308</u>	<u>\$17,487,418</u>	<u>\$273,399</u>	<u>\$17,760,817</u>
Less homeowners exemptions.....	—	141,900	141,900	—	141,900
Less business inventory exemptions.....	—	1,840	1,840	13,408	15,248
Net Value	<u>\$444,110</u>	<u>\$16,899,568</u>	<u>\$17,343,678</u>	<u>\$259,991</u>	<u>\$17,603,669</u>

* Value for tax rate calculation.

CITY OF INDIAN WELLS
ANNUAL REVENUES AND EXPENSES 1969/70 TO 1972/73

	1969/70	1970/71	1971/72	Budget 1972/73
REVENUE				
Property taxes	\$ 17,660.86	\$ 14,868.25	\$ 8,462.62	\$ 8,500.00
Sales and use taxes	20,918.68	22,574.23	26,806.06	25,000.00
Documentary stamp tax	2,973.44	5,203.90	6,679.44	5,000.00
Room tax	37,470.24	49,427.46	54,125.87	50,000.00
Franchise tax	9,304.12	10,441.63	12,410.30	11,000.00
License and building permits, subdivision fees	19,990.75	22,735.15	51,274.55	40,500.00
Interest	4,708.62	7,208.85	5,821.65	4,000.00
Motor vehicles in lieu	5,799.85	6,617.71	7,059.06	6,834.00
Contributions for public works	—	—	23,850.00	—
Miscellaneous revenue	5,755.11	6,785.37	11,288.16	16,790.00*
Traffic safety fund	1,403.15	2,082.85	1,744.17	1,500.00
Special gas tax fund	13,922.35	13,885.15	14,710.96	14,485.19
Total Revenue	\$139,907.17	\$161,830.55	\$224,232.84	\$183,609.19
EXPENSES				
Salaries, travel, supplies	\$ 46,793.12	\$ 55,469.58	\$ 58,197.99	\$ 70,977.00
General government				
Public information	3,165.92	2,692.52	2,965.13	3,000.00
Insurance	768.17	1,727.87	1,285.02	1,675.00
Rentals	2,479.20	6,211.70	1,562.72	1,800.00
Professional and technical services	1,388.25	3,056.66	4,114.09	1,775.00
Utilities	673.63	810.17	1,421.37	2,000.00
Sheriff's services	15,121.72	20,256.84	22,075.20	22,667.00
Employee retirement	—	517.80	3,114.13	3,500.00
R.A.P.A. contribution	—	—	3,335.00	2,835.00
Weed and nuisance abatement	—	183.75	1,365.51	1,000.00
City Hall acquisition and modification	—	—	—	84,600.00
Miscellaneous fees and expenses	4,020.93	1,326.39	6,055.36	3,625.00
Subtotal general government	\$ 27,617.82	\$ 36,783.70	\$ 47,293.53	\$128,477.00
Public works, salaries and expenses	2,005.92	63,430.53	39,740.77	16,600.00
Traffic safety fund	237.88	140.62	434.50	350.00
Special gas tax fund	2,295.91	28,241.55	21,103.99	26,500.00
Total Expenses	\$ 78,950.65	\$184,965.98	\$166,770.78	\$242,904.00
Net Income (Loss)	\$ 60,956.52	\$ (22,235.43)	\$ 57,462.06	\$ (59,294.81)

* Includes \$9,000.00 reimbursement for sewer district expenses.

CITY OF INDIAN WELLS
PROPERTY TAX RATES

Year	Tax Rate*
1968	\$0.15
1969	0.12
1970	0.10
1971	0.05
1972	0.05

* Per \$100 assessed valuation.

CITY OF INDIAN WELLS
TAX DELINQUENCY

Year	Secured Tax Levy	Delinquency	
		Amount	Percent
1968/69	\$20,549.82	\$451.52	2.20%
1969/70	16,507.14	412.86	2.50
1970/71	14,647.67	280.71	1.93
1971/72	8,002.46	143.75	1.80
1972/73		Not Available	

Source: California Municipal Statistics, Inc.

ROOM TAXES

Room tax revenues, at five percent of room charges, are collected by the City of Indian Wells. Monthly revenues derived from this source indicate the fluctuation of revenues from the seasonal visitor or tourist. The breakdown by month is shown in the table below.

In Indian Wells, the two resort hotels, Erawan Garden Hotel and the Indian Wells Hotel, have a combined total of 335 rooms. Both have convention facilities and estimate that from 60 to 80 percent of their business is group business. Peak times are January, February, March, and April when rates are raised. The Road Runner Motor Lodge gets overflow during peak times and generally caters to the short-term visitor. During June, July, and August the Erawan closes entirely; the Indian Wells Hotel operates at half capacity; and the Road Runner Motor Lodge operates with no restaurant facilities. The drop in room tax revenues reflects the reduction of visitors to Indian Wells during the summer. The Balboa Bay Club is subject to the room tax in the event that any of the condominiums are rented for less than one month.

Two major attractions to Indian Wells during the tourist season are the Bob Hope Desert Classic golf tournament and the Indio Date Festival. During these events both hotels and the lodge are filled to capacity.

The Bob Hope Desert Classic, the largest charity golf tournament in the country, draws an estimated 50,000 to 60,000 visitors during the week-long golf tournament. The two country clubs in Indian Wells are among the five nearby clubs which host the event. Three clubs — Bermuda Dunes, La Quinta, and the Indian Wells Country Club host the tournament at their courses every year. Tamarisk and Eldorado Country Clubs alternate every other year. The Bob Hope Desert Classic played in February 1973, netted over \$500,000 primarily for the Eisenhower Medical Center in neighboring Palm Desert.

The Erawan Garden Hotel is Indian Wells' largest, with over 220 rooms. It has two swimming pools, a sauna, tennis courts, a putting green, bicycle rentals, and dining and entertainment nightly. The hotel's convention facilities include several large meeting rooms and smaller seminar rooms. Banquets can be arranged for over 300 in the main banquet room. Groups are accorded special reduced rates which vary according to the season.

Indio, just ten minutes from Indian Wells, is known as the date capital of the United States. Ninety-eight percent of United States dates are grown in Indio and its environs. The annual Date Festival of the Riverside County Fair is celebrated during February with pageants, parades, horse shows, and various agricultural, horticultural, and mineral exhibits. Date Festival week is another peak time for visitor facilities in Indian Wells.

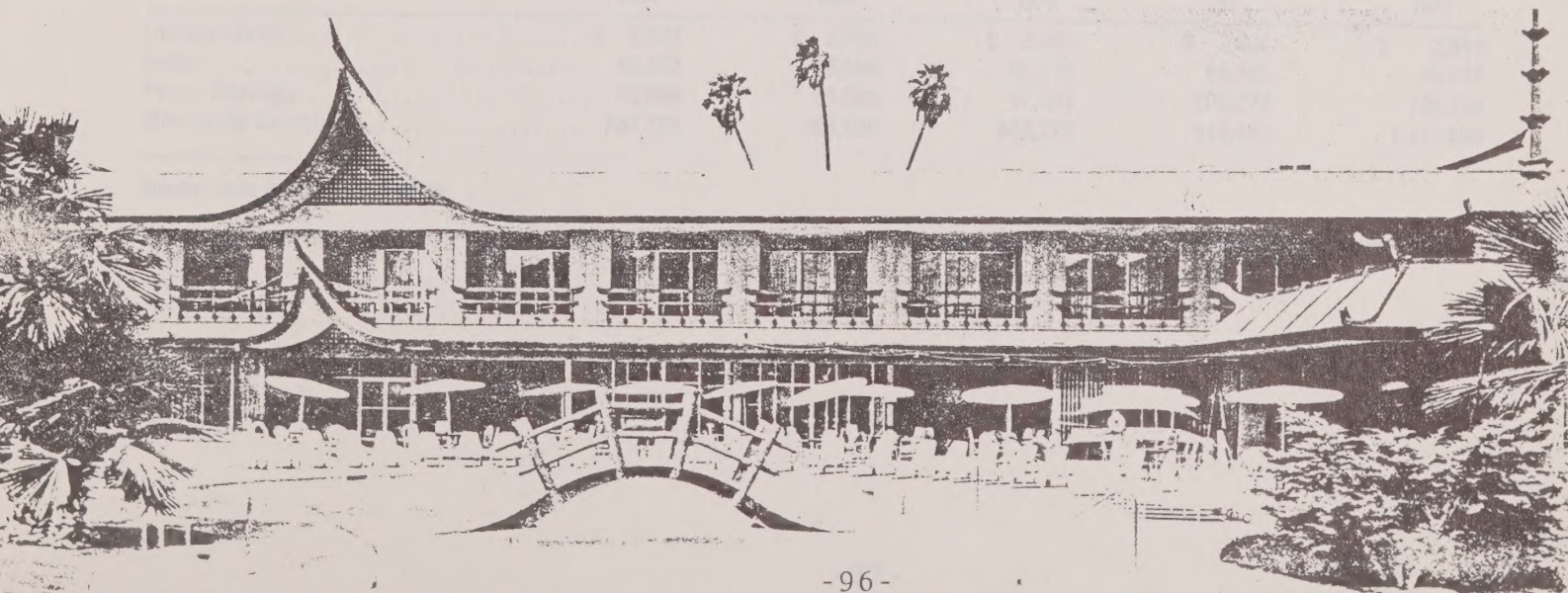
CITY OF INDIAN WELLS HOTEL OCCUPANCY TAX^①

	1970	1971	1972	1973 ^②
Total	\$40,842	\$49,745	\$59,541	\$32,559
January	\$ 3,530	\$ 4,847	\$ 6,242	\$ 8,252
February ^③	7,253	9,729	12,169	12,649
March	6,984	8,268	10,996	11,658
April	5,883	7,177	6,580	—
May	4,181	5,237	5,105	—
June	947	1,715	2,005	—
July	118	195	290	—
August	55	122	208	—
September	1,069	1,476	1,739	—
October	3,292	4,809	4,392	—
November	4,803	3,341	4,197	—
December	2,727	2,829	5,618	—

① Paid to City of Indian Wells. Computed at 5% of gross fees collected for each room. Includes Erawan Garden, Indian Wells Hotel, Road Runner Motor Lodge, and a portion of Balboa Bay Club.

② Three months.

③ Bob Hope Desert Classic usually held in February each year.



BUILDING PERMIT REVENUES

The Planning Commission is made up of five citizens appointed by the City Council to four year terms. They review subdivision maps and zoning matters for residential and commercial development. Currently, each major residential area in the city has a representative serving on the commission. Staff work for the Planning Commission is done by the Director of Building and Planning.

All subdivisions and commercial developments require approval by both the Planning Commission and the City Council. Permits are issued after approval. The few zone changes that are approved do not become official until construction is begun. This strengthens the city's control over land use.

RETAIL SALES

Residents of the city currently shop in neighboring commercial areas in Palm Desert or Indio, and in Palm Springs.

Retail sales in the City of Indian Wells are derived primarily from visitor facilities and are given in the table below. Revenues derived from sales and use taxes amounted to \$26,806, for the year ended June 30, 1972. Per capital retail sales were \$2,967 in 1972 compared to \$2,763 in 1970. Retail sales in Indian Wells have increased 48% in four years.

A new commercial development is currently being planned in Indian Wells. The Planning Commission and City Council have approved the plan for a shopping cen-

ter on the corner of Club Drive and Highway 111. The plan includes a restaurant, bank, market, and air-conditioned mall with shops. This proposed development will be constructed adjacent to the existing City Hall.

If this development proceeds as planned, the city expects increased revenues from both property taxes and sales taxes.

CITY OF INDIAN WELLS BUILDING PERMIT DATA

	Single Family and Condominiums		Multiple and Commercial		Total Valuation
	No. of Permits	Valuation	No. of Permits	Valuation	
1969	28	\$1,856,889	6	\$1,597,141	\$3,454,030
1970	50	2,876,635		—	2,876,635
1971	58	3,372,851	9	2,102,178	5,475,029
1972	80	4,548,040	8	1,311,552	5,859,592
1973*	61	3,371,861		—	3,371,861

* Four months.

1969 — 6 Commercial Permits included additions, alterations, etc. to country clubs and hotel complex.

1971 — 9 Commercial Permits included 102 units Balboa Bay Club Hotel and 2 clubhouse and alterations to country club.

1972 — 8 Commercial Permits included 84 units Balboa Bay Club Hotel.

CITY OF INDIAN WELLS TAXABLE RETAIL SALES COMPARISON WITH ADJACENT CITIES (000)

	1968	1969	1970	1971	1972
Indian Wells	\$ 1,923	\$ 2,006	\$ 2,100	\$ 2,431	\$ 2,849
Indio	49,163	56,686	61,476	68,885	76,672
Palm Springs	83,686	89,688	92,761	103,272	120,759
Riverside County	700,738	783,598	828,578	943,452	1,119,295

Source: State Board of Equalization.

f. Transportation Systems - Highway 111 provides the principal access to and from the City. Interstate 10 lies northeasterly and at present both Bob Hope Drive and Washington Street afford feeder routes to Highway 111, near the West and East City limits respectively. Additional regional access is provided via Highway 74 to the southwest into the Hemet and San Diego areas.

Passenger service via AMTRAK and freight rail service is available in Indio through the mainline of the Southern Pacific Railway.

Air transportation is available at Palm Springs Municipal Airport, Thermal Airport, and Bermuda Dunes Airport. Bermuda Dunes and Thermal are general aviation facilities, while the Palm Springs airport serves commercial traffic of both the interregional and intercontinental levels.

Public transportation is not available on a Valley-wide basis. Greyhound Bus lines serve the traffic in and out of the Valley, with some routes along Highway 111; however, other public transportation is limited to taxi service.

(See EXHIBITS Q₁ and Q₂ for traffic flows).

- f. Transportation Systems - Highway 111 provides the principal access to and from the City. Interstate 10 lies northeasterly and at present both Bob Hope Drive and Washington Street afford feeder routes to Highway 111, near the West and East City limits respectively. Additional regional access is provided via Highway 74 to the southwest into the Hemet and San Diego areas.

Passenger service via AMTRAK and freight rail service is available in Indio through the mainline of the Southern Pacific Railway.

Air transportation is available at Palm Springs Municipal Airport, Thermal Airport, and Bermuda Dunes Airport. Bermuda Dunes and Thermal are general aviation facilities, while the Palm Springs airport serves commercial traffic of both the interregional and intercontinental levels.

Public transportation is not available on a Valley-wide basis. Greyhound Bus lines serve the traffic in and out of the Valley, with some routes along Highway 111; however, other public transportation is limited to taxi service.

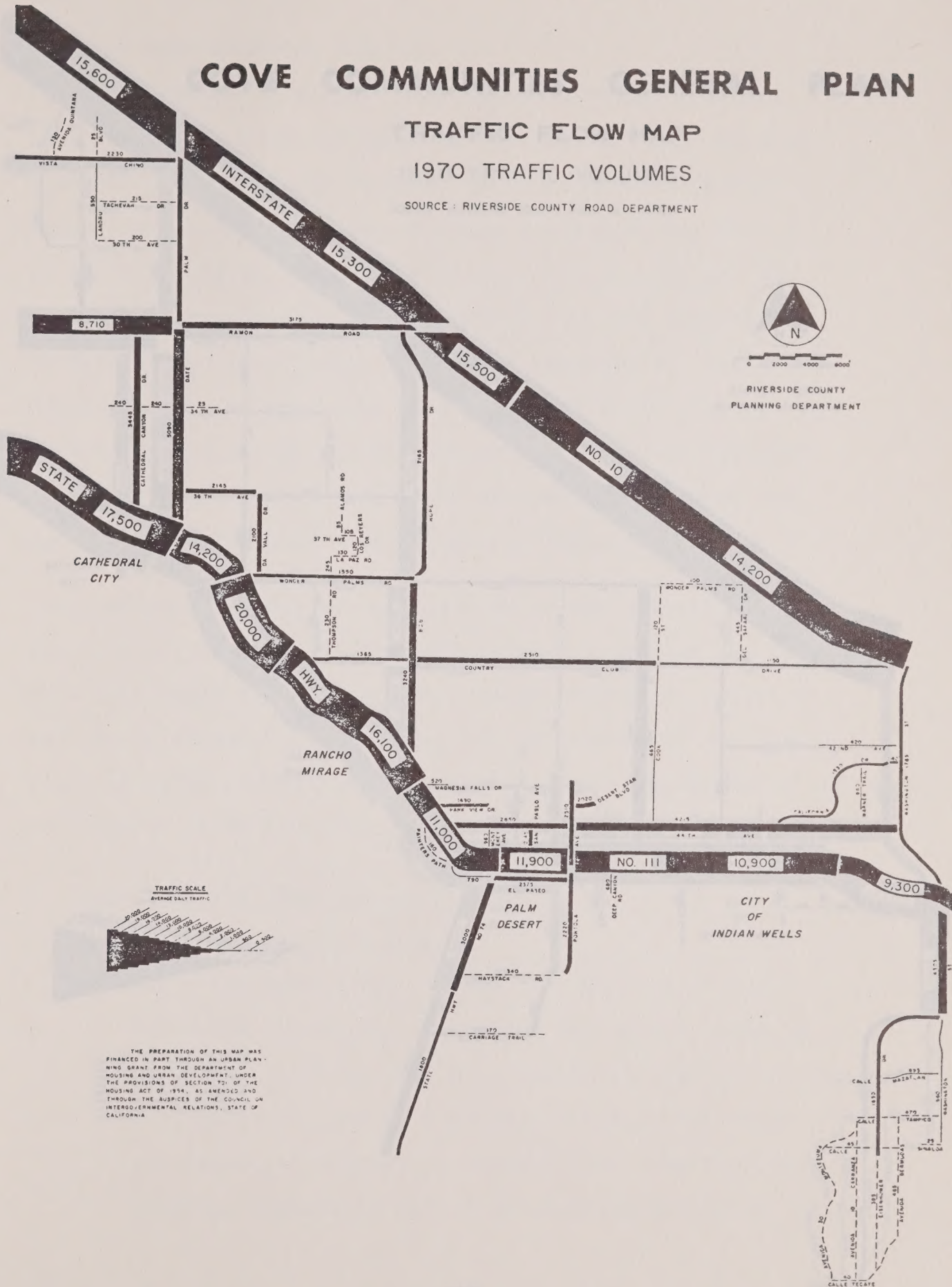
(See EXHIBITS Q₁ and Q₂ for traffic flows).

COVE COMMUNITIES GENERAL PLAN

TRAFFIC FLOW MAP

1970 TRAFFIC VOLUMES

SOURCE: RIVERSIDE COUNTY ROAD DEPARTMENT

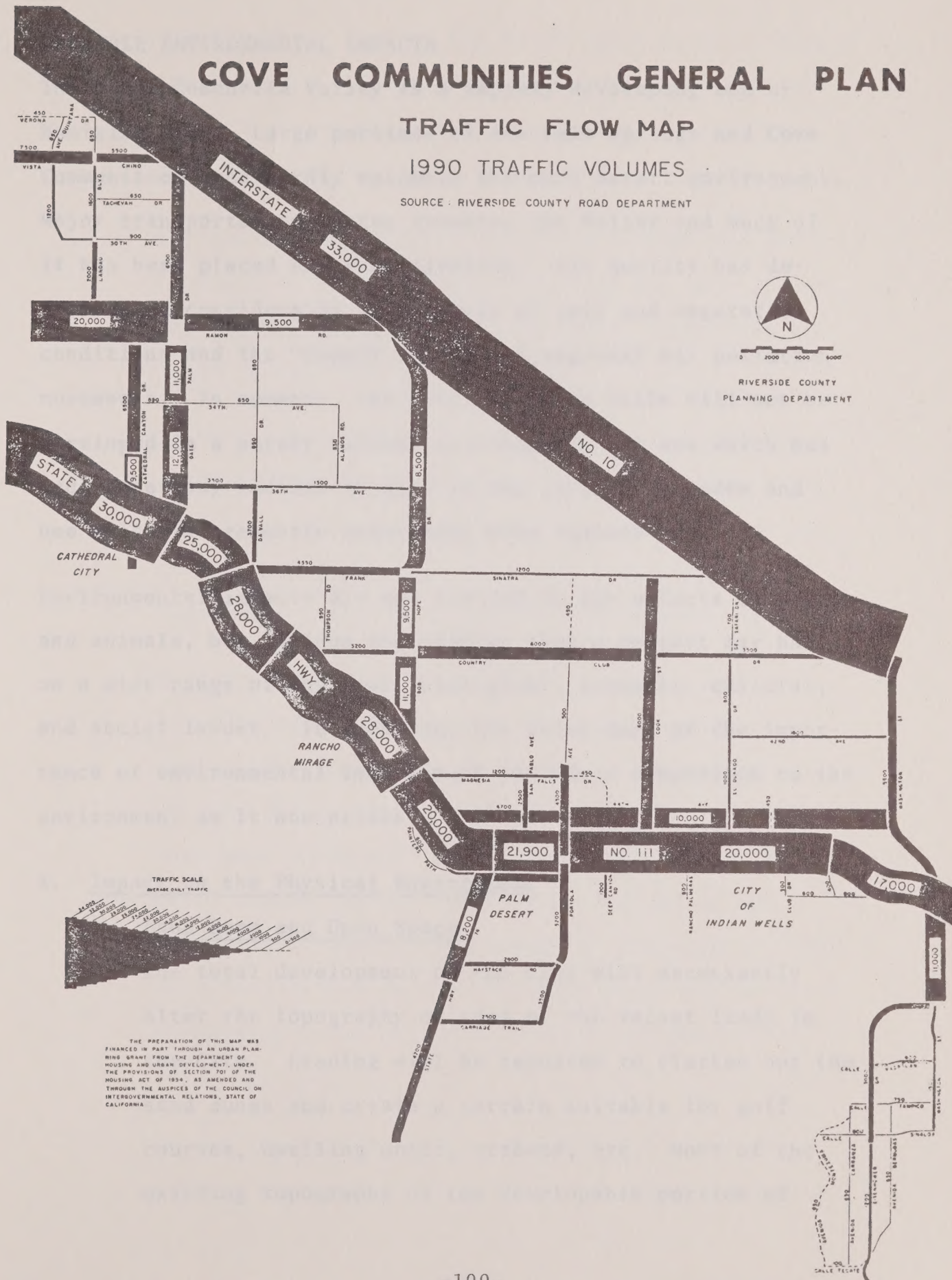


COVE COMMUNITIES GENERAL PLAN

TRAFFIC FLOW MAP

1990 TRAFFIC VOLUMES

SOURCE: RIVERSIDE COUNTY ROAD DEPARTMENT



III. PROBABLE ENVIRONMENTAL IMPACTS

The Upper Coachella Valley is a rapidly developing and urbanizing area. Large portions of the Palm Springs and Cove Communities area hardly resemble the pure desert environment. Major transportation routes traverse the Valley and much of it has been placed under cultivation. Air quality has deteriorated considerably as a result of soil and vegetation conditions and the "funnel effect" of regional air pollution movements. In summary, the City of Indian Wells will not be developed in a purely natural environment, but one which has undergone many radical changes in the last two decades and one which is presently undergoing many radical changes.

Environmental impacts are not limited to the effects on plants and animals, but include the effects that a project may have on a wide range of physical, biological, economic, cultural, and social issues. In addition, the assessment of the importance of environmental impact must include a comparison to the environment as it now exists.

A. Impact on the Physical Environment

1. Land Form and Open Space

The total development of the City will necessarily alter the topography of some of the vacant lands in the City. Grading will be required to flatten out the sand dunes and create a terrain suitable for golf courses, dwelling units, streets, etc. Most of the existing topography of the developable portion of

the City is of little intrinsic value to man, excepting the small area in the northeastern portions of the City where some sand dunes exist. These dunes are of medium size and of some aesthetic value.

The mountainous, rocky slopes and bahadas are not proposed to be developed; therefore the only impact anticipated should be if development encroaches too close to the "toe of the slope."

Probably the greatest visual impact will occur when the agricultural lands are converted to urban uses. The City's Open Space and Conservation Elements discourage premature conversion and require moving of trees into urban developments as they are built.

2. Groundwater

The City will be relying heavily on groundwater resources for irrigating the golf courses and the supply of domestic water for dwellings. There is no evidence that this usage will have any adverse effect, to a great degree, on the quantity or quality of the groundwater supply. The amount of groundwater available will be increasing in future years due to the recharge program of the C.V.C.W.D. and the Desert Water Agency.

It has been estimated by the C.V.C.W.D. that no serious overdraft will occur in the Upper Coachella

Valley groundwater basin to the year 1990. Development of the City of Indian Wells, in and of itself, will not present an overdraft problem; however, the cumulative effect of all development within the Upper Coachella Valley may require that additional sources are necessary after the year 1990.

With the installation of recent wastewater collection systems, reuse of effluent, and current and projected water quality control policies, no serious water quality problems are anticipated for the City.

3. Air Quality

The Air Quality of the Coachella Valley is a critical issue. It is particularly critical to a resort community. The problem of pollutant inflow from the Los Angeles Basin and suspended particles are accentuated by the terrain and air flows of the Coachella Valley. Although it is not known to what degree Valley sources contribute to the oxidant levels, the desert communities must address themselves to reducing local emission output. Automobiles are the prime producers of pollutants and development is going to create increased automobile trips. Total development of the City, together with the cumulative effect of development in the Upper Valley, is expected to generate substantial vehicle miles per year; which could result in a significant degradation of air quality within the Valley and reduce the desirability of living in the desert.

Consider the following pollutant calculations based upon recent data:

Assume 6,700 dwelling units

$$\text{X } 1.5 \text{ cars/unit X } 365 \text{ days X } 30 \text{ mi/car/day} = 110,000,000 \text{ mi/yr.}$$

Carbon Monoxide

Consider 1971 model year

Chart 3.1.2-2 Emission Factors gives

$$\text{CO} = .075 \text{ lb./VMT}$$

Chart 3.1.1-1 gives correction factor of .05

$$\text{CO emission/yr.} = 110,000,000 \text{ X } .075 \text{ X } .05 = 412,500 \text{ lbs.}$$

$$\text{Daily rate} = \frac{412,500}{365} = 1,130 \text{ lbs.}$$

Oxides of Nitrogen

Consider 1971 model year

Chart 3.1.2-2 Emission Factors gives

$$\text{NO}_x = .0077 \text{ lb./VMT}$$

Chart 3.1.1-1 gives correction factor of 1.3

$$\text{NO}_x \text{ emission/yr.} = 110,000,000 \text{ X } .0077 \text{ X } 1.3 = 1,101,100 \text{ lbs.}$$

$$\text{Daily rate} = \frac{1,101,100}{365} = 3,017 \text{ lbs.}$$

Hydrocarbons

Consider 1971 model year

Chart 3.1.2-2 Emission Factors gives

$$\text{HC} = .0064 \text{ lb./VMT}$$

Chart 3.1.1-1 gives correction factor of 0.6

$$\text{HC emission/yr.} = 110,000,000 \text{ X } .0064 \text{ X } 0.6 = 422,400 \text{ lbs.}$$

$$\text{Daily rate} = \frac{422,400}{365} = 1,157 \text{ lbs.}$$

MAJOR VEHICLE TOTAL EMISSIONS = 1,936,000 lbs. or 968 tons/year

MAJOR VEHICLE TOTAL DAILY = 5,304 lbs.

Although within the City these pollutants represent only 4% of the total for the County, the cumulative effect would ultimately be disastrous if left unchecked.

It should be noted that the above calculations are for a 1971 model vehicle. Drastic reductions in vehicle emissions are constantly being mandated by the EPA; and new technology will undoubtedly continue to improve the quality of emissions. The degree of improvement and the time necessary for achievement of these goals is highly speculative.

4. Climate

The effect of City development on the climate of the Coachella Valley, if even measurable, would be trivial. The change of ground cover will affect ground temperatures and some of the water used for irrigating the golf courses, swimming pools, and standing in lakes will evaporate into the local atmosphere.

The addition of one or several more urban developments to the Valley will not result in a noticeable change in climate.

5. Flooding

The soils in the study area are highly permeable and have moderately low runoff potential. Major flooding is controlled by the C.V.C.W.D.'s system of

dikes and channels. However, until a local storm-water drainage system is built, considerable nuisance sheetflows could occur from local cloudbursts. This condition will be aggravated by more development, since there will be less rainwater absorption and more runoff.

6. Wind Erosion

The project will have a positive effect on the Valley wind erosion problem. The soils in the City are highly susceptible to wind erosion, but the creation of golf courses and residential developments will eliminate on-site erosion.

The chances for sand blow are highest during construction after vegetation has been removed. The City's ordinances will have to be strictly adhered to in order to minimize this hazard.

7. Seismic

The probability of a severe earthquake being experienced in the City is not high, but the possibility always exists in an area as seismically active as Southern California. The City will have several multi-story structures; however, the vast majority of buildings throughout the City will be premium quality one-story buildings. All buildings will be built to code and with consideration given the maximum magnitude quake expected during their lifetime.

Due to the nature of the soils, a severe earthquake could cause significant settling and perhaps structural damage. The possible shifting of boulders at the foothills, referred to earlier, could also present a hazard. Both of these potentialities will have to be considered when approving building permits.

B. Impact on the Biological Environment

1. Flora

To a great extent, total development of the City will add diversity and quantity to the vegetation currently existing in the area. A significant impact will occur by removal of natural desert-type vegetation and substitution of other species requiring more water. This will result in an enlarged habitat for many species of fauna and a decrease in habitat for the natural desert dwelling kind.

Proposals for preservation or replanting of date and citrus trees are contained in the Open Space and Conservation Elements of the City's General Plan.

2. Fauna

Total development of the City as currently planned and zoned will have some detrimental effect on the habitat of fauna, particularly the sand habitat species. Jack rabbits and most rodents, as well as birds, will have improved environments after development with

extensive landscaping.

The City's Open Space and Conservation Elements provide a measure of protection, probably sufficient to avoid extinction of most any species found within the area if proper implementation is followed.

The destruction of the large and small sand dunes will further decrease the inhabitable areas of several species of mammals, reptiles, and insects. This is most critical for the rare and endangered Sand Dune Lizard. Preservation of the scenic mountains of sand indicated by the Open Space Map in their natural state would slow the pace of the lizard's extinction.

Other than for the aforementioned lizard, the development will not in itself greatly affect Coachella Valley wildlife as a whole. It is evident that urban growth throughout the Valley is encroaching upon the limited desert habitat. Steps need to be taken to preserve this special environment if some form of the unique indigenous desert life is to be preserved. The Open Space and Conservation Elements are a first step in that direction.

C. Impact on the Man-Made Environment

1. Archaeology

The Open Space and Conservation Elements of the City require identification and limited use of archaeologically

sensitive areas. Total development of the City will have a profound effect on cultural remains, since the City appears to have been a major site of the Desert Cahuilla Indians. The exact extent of aboriginal artifactual material is not known and cannot be determined without further investigation by professional archaeologists.

2. Population

The growth of the City will occur simultaneously with growth in the Upper Coachella Valley. The "life style" and character of the population is not expected to change very much due to the philosophy and high standards of the City. The Open Space Element of the General Plan, together with very low density residential zoning, ensure that a very low density of population will prevail. It is expected that the gradual increase from 1,200 persons to 15,400 persons will take a considerable number of years. If current trends continue (and indications are they will) the percentage of permanent residents versus seasonal residents will decrease and remain below 60%.

3. Land Use Compatibility

The City is surrounded by mountains, vacant lands, and tourist/recreation communities (also golf course oriented). The Whitewater Channel provides a buffer for possible incompatible uses to the North; however,

the Cove Communities General Plan calls for low density residential development in that area as well. In short, all surrounding properties are in uses compatible with the proposed project. In addition, high standards and open space will assure quality and homogeneity within the City itself.

4. Recreation and Open Space

The question to be considered in this section is whether or not development of this project will have a negative or positive impact on the recreation or open space attributes of the area and City. Goals, policies, and standards of the City's Open Space and Conservation Elements provide for maintenance and enhancement of recreational and open space resources. The private recreation value of properties will be enhanced, as recreation is one of the primary functions of the project. The types of recreation (e.g. golf courses) will retain the open space quality of the project area.

However, it is important to note that the character of the open space, in some areas sand dunes and open desert, will incur significant changes as it is developed to landscaped environments.

5. Visual

Development will change the present open desert and agricultural image which presently exists in much of

the last Committee meeting. It was the
committee's recommendation that the
in short, all outstanding projects are to be
compatible with the proposed project. In addition,
high standards and open space will be maintained and
homogeneity within the City limits.

Recreation and Open Space

The question to be considered in this section is
whether or not development of this project will have
a negative or positive impact on the recreation and
open space resources of the area and City. Goals,
policies, and standards of the City's Open Space and
Recreation Element provide for maintenance and
enhancement of recreational and open space resources.
The private recreation value of properties will be
enhanced, as recreation is one of the primary functions
of the project. The types of recreation to be
provided will retain the open space quality of the
project area.

However, it is important to note that the character
of the open space, in some ways, may change and open
space, will incur significant changes as it is
subjected to landscape development.

Visual

Development will change the street open space and
visual quality of the project area in some ways.

the City. While this change certainly does not blight the environment, whether or not it is a positive or a negative impact is a personal and aesthetic judgement, not a technical assessment.

Also, construction and landscaping may impede views of the mountains. These views, South of the developable area, are one of the more important assets of the community. The City's architectural review and low density profile zoning regulations tend to reduce the severity of this impact.

6. Transportation

No significant noise impact is expected due to airport or railroad operations because the project area is outside the noise impact zone of both facilities. However, additional population will no doubt increase the number of flights in and out of the Palm Springs airport, which in turn will add to the number of airport related noises occurring in the Upper Valley.

The primary transportation impact will occur on the surface roads, particularly Highway 111 which will experience a tremendous increase in traffic volumes as the Upper Valley and the City develop. The congestion and noise levels adjacent to major routes and at intersections will increase respectively. The general and specific plans for the County and cities

provide for widening the major routes. Current policies dictate that this widening will occur as developments are constructed adjacent to these routes.

7. Public Facilities

Use of public facilities by the tourist population and seasonal population of the City will be significantly lower than use by a permanent resident population. There will be little use of public educational or public recreation facilities, little use of library facilities, and virtually no persons requiring public assistance funding. Additional fire protection services will be required. Local facilities are relatively inadequate to handle the increased levels of protection being desired by the public. Total development will require additional water storage reservoirs and adequate sizing and flows in main lines. Police protection requirements will be minimal due to the many private security guards operating within the City. Requirements for medical services and use of local hospitals will be increased proportionately with the population increase.

8. Utilities

Most all urban developments place further demands upon utility systems.

- a. Electric - Southern California Edison provides electrical power to the area. Working with their

own projections they are building for future community requirements. The development of the City, in itself, will not have any deleterious effects on the supply of electrical service to the desert region; however the cumulative effect of concurrent development dictates that additional sources and means of generation must become available for growth to continue. In the past this has not been a great obstacle and it is assumed that new sources and technology will continue.

- b. Gas - The Southern California Gas Company has adequate capacity to supply gas to the growing Southern California communities. The City will have no appreciable impact on gas supplies.
- c. Water - Development of the City and contiguous areas poses no serious impact on the quantity or quality of domestic water for the foreseeable future. At some point beyond 1990 additional sources of supply may become necessary. The Coachella Valley County Water District has indicated that no serious overdraft will occur within the foreseeable future.
- d. Sewage - Most all sewage will be conveyed by sewers to an existing plant for secondary treatment. Bids have gone out for a new sewage treatment plant to be located at Cook Street. In approximately

one year this plant will be able to handle the flows from the City.

The Cook Street plant will make reclaimed water, suitable for irrigation, available. If it is economically feasible for the City or a private golf club to purchase this water, it would obviate the necessity of tapping groundwater resources for golf course watering.

9. Economic

Economic impact includes the effect of the project on the nature and distribution of economic activity. This development will not substantially change the nature of the labor force nor the business types now within the region; but it will expand the demand for the types of goods and services now available. The goods and services required will include normal consumer services and goods, maintenance supplies, construction materials, restaurant equipment and supplies, golf course equipment and supplies, etc.

The improvements in the City will generate a very significant increase in the assessed valuation of the City. This should approximate six times its present value or about \$102 million, based on today's costs and current assessed value. This estimated valuation would produce yearly property

taxes, to the County, of approximately \$10,200,000, assuming 1972/73 tax rates. If the City should decide to levy a substantial property tax it could increase its revenue accordingly. At present, the City obtains almost all of its income from sources other than a City property tax.

Both the City's revenues and expenses would increase with increased population and associated economic activity; however, no significant disproportion will occur.

IV. SUMMARY OF UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS

Development of the City will have certain effects which cannot be avoided. Those which are particular to the development of the City are as follows:

- A. Noise and dust from construction cannot be totally eliminated; nor can traffic disruption and street repairs be avoided altogether.
- B. Changing of the visual appearance of the site cannot be avoided; nor can all scenic vistas be protected.
- C. Elimination of some of the natural open space quality of the City.
- D. Elimination of some natural desert areas as a scenic resource.
- E. With elimination of the dune environment, the Sand Dune Lizard habitat area will be reduced.
- F. The creation of additional runoff and less infiltration in the developed areas.
- G. Increased traffic and added deterioration of air quality.
- H. Reduction, and some destruction, of archaeological sites.

V. MITIGATION MEASURES PROPOSED TO MINIMIZE THE IMPACTS.

- A. All of the policies and implementation methods of the Open Space and Conservation Elements of the General Plan for the City of Indian Wells shall be considered.
- B. Most all existing City ordinances relating to development shall be applied where necessary.
- C. Develop and adopt additional General Plan Elements, including implementation methods and supporting ordinances. Specifically, these items include, but are not limited to:
 - 1. Use of a cluster development concept to maximize recreation and open space areas.
 - 2. Redistribution of existing cultivated palms for golf course and other landscaping.
 - 3. Retention of existing windrows and planting of additional ones.
 - 4. Use of Indian Wells Municipal Code, Title 18, to minimize sand blow during construction.
 - 5. Landscaping of most projects to minimize wind erosion effects, provide additional wildlife habitat, and add to the aesthetic quality.
 - 6. Installation of a storm water conduit system throughout the City.

7. Widening and landscaping all major routes and signaling various intersections.
8. Implementation of an adequate fire fighting system.
9. Encouragement of energy-conserving construction in buildings.
10. Preservation of some sensitive archaeological, historic, and wildlife areas.

VI. ALTERNATIVES TO THE PROPOSED ACTION

Impact Alternative	Impact on the Physical Environment	Impact on the Biologic Environment	Impact on the Human Environment
The Proposed Project	Comparatively moderate physical changes; wind erosion situation would be improved after construction.	A change in type of vegetation; elimination of some natural habitat for existing wildlife; introduction of new plant species and new expanded wildlife habitat.	Minimum impact of a development on public facilities; high tax revenue potential; more reasonable ecological balance than high density.
The 'Status Quo' (Ranching Operations, Vacant Land, and some Development)	Sand dunes would continue to move southeasterly; blowsand would continue to be a problem to surrounding properties.	No further impact.	Least public facilities usage; with some developments existing, non-development of the balance will cause inefficiency in provision of public facilities; loss of potential tax revenue; development occurs elsewhere subsequently.
High Density Development	More extensive grading, construction of roads, structures, utilities would make the physical environmental impact the worst in this alternative	Same impact as in proposed project except that more vegetation would be replaced. Greater human access in foothill areas thereby greater degradation probable.	Greater demand for a wider range of commercial and public facilities; recreation and open space aspect of the project would be lost; thereby decreasing quality of environment. Character and "life-style" of City would be lost.

VII. COMPARISON OF SHORT AND LONG TERM EFFECTS

The principal short term impacts are expected to occur in each neighborhood as construction takes place. Short term impacts are generally limited to the noise and dust of construction. Long term impacts are those effects which will continue after the project has reached completion. These include the effective elimination of the site for other uses in the foreseeable future, and the continuation of the resort development trend in the Upper Valley. The establishment of this quality low density atmosphere and the continuation of the recreation communities philosophy will set a strong trend for future development throughout the entire area.

VIII. IRREVERSIBLE CHANGES AND COMMITMENT OF RESOURCES

Large investments in improvements will be made in the City and a return to the natural desert environment is not probable. The introduction of foreign plant species and surface water will do much to alter the natural environment for a long time.

Other effects of the project which fall into this category are utilization of raw building materials such as wood, oil, and metals; some of which are in short supply. Energy requirements of the proposed project, although anticipated by the utility companies, will add to the strains on our depleting supply of existing energy sources.

IX. THE GROWTH INDUCING IMPACT OF THE PROPOSED PROJECT

The prime generator of growth in the project vicinity is its attraction as a quality resort community. It would seem, in effect, that the existing resort facilities have provided the image and the impetus to develop new resort facilities. This type of City, and resort projects in surrounding areas, will have the future effect of encouraging other similar projects in the area. Commercial and other support facilities for the residential developments will come mainly from the existing and expanding stock of establishments in nearby communities.

Palm Springs Department of Planning and Development, Mr. Richard Service, Palm Springs

Phillip S. Boyd Deep Canyon Research Center, University of California, Mr. Lloyd Taylor

Riverside County Air Pollution Control District, Mr. H. J. Kennally, Riverside

Riverside County Assessor, Mr. Robert Miller, Indio

Riverside County Department of Fire Protection, Mr. George Scheidtman, Perris, California

Riverside County Health Department, Mr. Lloyd Rogers, Indio

Riverside County Planning Department, Mr. Todd Ascher, Riverside

Riverside County Sales Department, Mr. Ben Miller, Riverside

Riverside County Sheriff's Department, Captain Del Monte, Indio

Southern California Edison Company, Mr. Gerald Harris, Palm Desert

Southern California Gas Company, Mr. Sidney Service, Indio

U.S. Department of Agriculture Soil Conservation Service, Mr. Wayne Ryan, Indio

University of California at Riverside, Archaeological Research, Dr. Philip Miller, Riverside

X. ORGANIZATIONS AND PERSONS CONSULTED

California State Water Quality Control Board, Messrs. Arthur Swajian and Art Courtwright, Indio.

Coachella Valley County Water District, Messrs. Les Chaudoin, Wm. Longenecker, Robert Nelson, Ole Nordland, Coachella.

College of the Desert, Dr. Ernest Tinkham, Palm Desert.

Indian Wells City Staff, Messrs. Melvin Craig and George Minturn, Indian Wells.

Living Desert Reserve, Ms. Karen Fowler and Mr. Henry Clark, Palm Desert.

Palm Desert Chamber of Commerce, Mr. Noel Brush, Immediate Past President, Palm Desert.

Palm Springs Department of Planning and Development, Mr. Richard Service, Palm Springs.

Philip L. Boyd Deep Canyon Research Center, University of California, Mr. Lloyd Tevis.

Riverside County Air Pollution Control District, Mr. M. J. Kenneally, Riverside.

Riverside County Assessor, Mr. Robert Baier, Indio.

Riverside County Department of Fire Protection, Mr. George Schultejann, Perris, California.

Riverside County Health Department, Mr. Lloyd Rogers, Indio.

Riverside County Planning Department, Mr. Todd Bealer, Riverside.

Riverside County Road Department, Mr. Ben Dobbins, Riverside.

Riverside County Sheriff's Department, Captain Del Fountain, Indio.

Southern California Edison Company, Mr. Kermit Martin, Palm Desert.

Southern California Gas Company, Mr. Sidney Branson, Indio.

U.S. Department of Agriculture Soil Conservation Service, Mr. Norman Elam, Indio.

University of California at Riverside, Archaeological Research Unit, Mr. Philip Wilke, Riverside.

XI. BIBLIOGRAPHY

- Bartle Wells Associates, City of Indian Wells Municipal Sewer Facilities District No. 1, 1972 Sewer Bonds, Series A, \$1,000,000 General Obligation, July 1973.
- Bechtel Corporation, Comprehensive Water Resources Management Plan, 1967.
- Bechtel Corporation, Route Studies of the California Aqueduct, 1964.
- California, State of, Environmental Quality Act, 1970.
- California Air Resources Board, California Air Basins, December 1972.
- California Department of Conservation, Division of Mines and Geology, Geologic Map of California, Santa Ana Sheet, 1965.
- California Department of Conservation, Division of Mines and Geology, Preliminary Earthquake Epicenter Map of California 1934 - 1971, July 1972.
- California Department of Water Resources, Coachella Valley Investigation, Bulletin No. 108, 1964.
- California Department of Water Resources, Feasibility of Serving the Desert Water Agency Service Area From the State Water Facilities, Bulletin No. 119-1, 1962.
- California Department of Water Resources, Feasibility of Serving the Desert Water Agency Service Area From the State Water Facilities, Bulletin No. 119-3, 1963.
- California Department of Water Resources, Mojave Groundwater Basins Investigated, Bulletin No. 84, 1967.
- California Department of Water Resources, The State of California Water Project in 1972, Bulletin No. 132-72, 1972.
- California Department of Water Resources, Water for California, The California Water Plan Outlook in 1970, Bulletin No. 160-70, December 1970.
- California Water Resources Control Board, Water Quality Control Plan (Interim) West Colorado River Basin 7-A, June 1971.
- Coachella Valley County Water District, Annual Review, 1972-73.
- Coachella Valley County Water District, Palm Desert Area Waste-water Study, 1966.

- Coachella Valley County Water District, Report on Preliminary Design and Cost Estimate for Flood Control Works for the La Quinta Area, September 1970.
- Coachella Valley County Water District, Whitewater River Basin, Coachella Valley, California, April 1967.
- Davidson, J. F. & Associates, La Quinta Environmental Impact Input, December 1972.
- Detwyler, Thomas R., et al, Urbanization & Environment, 1972.
- Hylan, Wesley, Comprehensive Plan for Surface Water Drainage for the Palm Desert Area, August 1966.
- Indian Wells, City of, Municipal Code, Latest Edition.
- Jones & Stokes Associates, Inc., Utilizing Colorado River Water to Recharge Upper Coachella Valley Groundwater Basins, Final Environmental Impact Report, June 1973.
- Palm Springs, City of, Department of Planning and Development, General Plan Economic Data, 1973.
- Palm Springs Desert Museum, Birds, Mammals, and Reptiles of the Living Desert Reserve, 1971.
- Palm Springs Life, Annual Desert Progress Edition, 1972 - 73, September 1972.
- Riverside, County of, Average Daily Traffic, 1973.
- Riverside, County of, Cove Communities General Plan, December 1972.
- Riverside, County of, General Plan of Highways for Riverside County, California, amended 1973.
- Riverside, County of, Ordinance #348 Zoning, latest revision.
- Riverside, County of, Ordinance #460 Regulating Subdivisions, latest revision.
- Riverside County, 1969 Special Census, 1969.
- Riverside County Air Pollution Control District, Stationary Sources, Transportation Sources, January 1973.
- Riverside County Department of Development, Community Economic Profile, 1972.
- Riverside County Planning Department, Cove Communities General Plan Reports, May 1971.

- Ryan, R. Mark, Mammals of Deep Canyon, Colorado Desert, 1968.
- United States Department of Commerce, National Oceanic and Atmospheric Administration, Climatological Data, 1972, 1972.
- United States Geological Survey, A Procedure for Evaluating Environmental Impact, 1971.
- U. S. Bureau of the Census, 1970 Census of Population, 1970.
- U. S. Department of Agriculture, Soil Conservation Service, Coachella Valley Wind Erosion Problem, December 1967.
- U. S. Department of the Interior, Geological Survey, Water Resources Division, Analog Model Study of the Groundwater Basin of the Upper Coachella Valley, California, 1971.
- U. S. Environmental Protection Agency, Compilation of Air Pollution Emission Factors, April 1973.
- Webb Engineering, Inc., Environmental Impact Study for Gerald Moss Properties, Palm Desert, September 1973.
- Wilke, Philip J., Archaeological Research Group, University of California at Riverside, Recent Large-Scale Environmental Change in Salton Basin, California, October 1973.
- Wilsey & Ham, Chaparral Club, Draft Environmental Impact Report, June 1973.

Chapter 21.20ARCHITECTURE AND LANDSCAPINGSections:

- 21.20.010 Purpose.
- 21.20.020 Appointment of committee--Composition--Compensation.
- 21.20.030 Officers--Rule adoption.
- 21.20.040 Approval by architectural committee or staff.
- 21.20.050 Architectural committee approval.
- 21.20.060 Filing applications.
- 21.20.070 Considerations in review of applications.
- 21.20.080 Conditions.
- 21.20.090 Notification of approval or denial.
- 21.20.100 Time limitations on approval.
- 21.20.110 Transfer of approval upon change in use or minor expansion of use.
- 21.20.120 Modifications.
- 21.20.130 Review of community matters--Street tree plan.
- 21.20.140 Violation--Action.

21.20.010 Purpose. The purpose and intent of architectural and landscaping review is to secure the general purposes of this title and to insure that the general appearance of buildings and structures and the community in general, and the development of land and landscaping and tree planting shall in no case be such as would impair the orderly and harmonious development of the neighborhood or impair investment in and occupation of the neighborhood.

It is the intent of this chapter to restrict or specify the particular architectural and landscaping design proposed, or to specify the exterior detail or design, color, or materials proposed by the applicant, except as such detail is of such magnitude as to affect the general appearance and compatibility of the development with its surroundings. (Ord. 59 §1, 1971).

21.20.020 Appointment of committee--Composition--Compensation. The architectural and landscaping committee shall be composed of five members to be appointed by the city council; the members shall serve without compensation and shall hold office at the pleasure of the appointive power. (Ord. 59 §2, 1971).

21.20.030 Officers--Rule adoption. The members of the architectural and landscaping committee shall elect from

their own number a chairman and a vice chairman, name a secretary and adopt their own rules of procedure. Three members shall constitute a quorum. (Ord. 59 §3, 1971).

21.20.040 Approval by architectural committee or staff. Architectural and/or landscaping matters referred by the city council, planning commission, or city manager, and all applications for zoning permits, use permits or building permits for all uses of land, buildings, or structures, including single family houses and landscape plans in the city, shall be accompanied by architectural and site development plans to scale, which shall show building locations; landscaping, prominent existing streets, including street trees; ground treatment; fences; off-street parking and circulation; location and size of adjacent streets north arrow and property lines; drawings of the major exterior elevations, showing building materials, proposed exterior color scheme; showing existing building grades and proposed new grades; and all such drawings and sketches shall be reviewed by the architectural committee, including all R-1 lots established prior to the incorporation of the city, but except those of single family house plans or other structures of standard nature which may be approved by the planning and building staff in accordance with standards established by the architectural and landscaping committee. All of the above required architectural and site development plans shall have been reviewed and approved prior to issuance of a building permit. Development shall only be in accordance with approved plans. (Ord. 82 §1, 1972: Ord. 59 §4, 1971).

21.20.050 Architectural committee approval. The architectural committee shall determine whether the proposed architectural and site development plans considered under this title are consistent with this title and with the general objectives of the zoning title, and shall give or withhold approval accordingly. Any disapproval of plans by the staff shall be referred to the committee for action if such referral is requested in writing by the applicant within fifteen days from the time of notification of disapproval. Any disapproval of plans by the committee may be appealed by an application in writing to the city council within fifteen days from the time of notification of disapproval. (Ord. 59 §5, 1971).

21.20.060 Filing applications. Applications for design review shall be filed with the city. (Ord. 59 §6, 1971).

21.20.070 Considerations in review of applications. The architectural committee and the planning and building staff shall consider the following matters, in addition to all applicable code sections or official city council policies, in their review of applications:

(1) Considerations relating to traffic safety and traffic congestion:

(A) The effect of the site development plan on traffic conditions on abutting streets,

(B) The layout of the site with respect to locations and dimensions of vehicular and pedestrian entrances, exits, drives and walkways,

(C) The arrangement and adequacy of off-street parking facilities to prevent traffic congestion,

(D) The location, arrangement and dimensions of truck loading and unloading facilities,

(E) The circulation patterns within the boundaries of the development,

(F) The surfacing and lighting of off-street parking facilities;

(2) Considerations relating to outdoor advertising (signs):

The number, location, color, size, height, lighting and landscaping of outdoor advertising signs and structures in relation to the creation of traffic hazards and the appearance and harmony with adjacent development;

(3) Considerations relating to landscaping:

(A) The location, height and materials of walls, fences, hedges and screen plantings to insure open appearance and safety of driving along streets, harmony with adjacent development, or to conceal storage areas, utility installations, refuse containers, service yards, or other unsightly development,

(B) The planting of other shrubs and landscaping or the use of other landscaping for beautification, to establish and maintain a high-grade development and the exclusive character of the city,

(C) The planting of ground cover or other surfacing to prevent dust and erosion,

(D) The unnecessary destruction of existing healthy trees;

(4) Considerations relating to buildings and site layout:

(A) Consideration of the general silhouette and mass, including location on the site, elevations and relation to natural plant coverage, all in relationship to the neighborhood,

(B) Consideration of exterior design in relation to adjoining structures in height, bulk and area openings, breaks in the facade facing the street, line and pitch of roof, screening of mechanical equipment from view, and arrangement of structure on the parcel,

(C) Consideration of adequate usable outdoor living space for each dwelling unit occupying or to occupy the site;

(D) Consideration of the size and shape of the building site and lot;

(5) Considerations relating to drainage:

The effect of the site development plan on the adequacy of the storm and surface water drainage. (Ord. 82 §2, 1972; Ord. 59 §7, 1971).

21.20.080 Conditions. Design approval may include such conditions as are consistent with the considerations of this chapter, as the committee or planning and building staff deems reasonable and necessary under the circumstances to carry out the intent of this chapter. (Ord. 59 §8, 1971).

21.20.090 Notification of approval or denial. Upon the grant of design approval, the architectural committee shall prepare and mail or deliver to the applicant a formal statement thereof stating the fact of the grant and any conditions attached thereto, or the fact of denial and the reasons therefor. (Ord. 59 §9, 1971).

21.20.100 Time limitations on approval. If construction in accordance with the permit for any development for which design approval has been granted and has not been commenced within one year from the date of notification of approval, the approval shall be deemed automatically revoked. Upon application, an extension of time may be granted by the committee, or by the planning and building staff, if authorized to do so. (Ord. 59 §10, 1971).

21.20.110 Transfer of approval upon change in use or minor expansion of use. Design approval may be transferred by the architectural committee if the use is changed, or the zone classification is changed, or when minor modifications of the existing use is proposed, and the architectural committee determines that the new circumstances will be in substantial conformity to the original design approval. If the transfer is not approved, a new application for design review must be filed. (Ord. 59 §11, 1971).

21.20.120 Modifications. Upon request of the applicant, modifications in the approved plan may be made by the committee, if it is found that the modification will meet the requirements of this chapter. The architectural committee may revoke or modify a design approval if the development does not conform to all requirements of the approved permit. (Ord. 59 §12, 1971).

21.20.130 Review of community matters--Street tree plan. The architectural board may review and study any and all matters of architectural or landscaping nature affecting the entire community, and also may adopt a plan for street trees within the limits of the city which plan shall be, after adoption by the board, referred to the city council

for its approval and adoption as the formal street tree plan for such city. (Ord. 59 §13, 1971).

21.20.140 Violation--Action. In addition to any other remedies for violation of city ordinances in force, the city may maintain an action for an injunction to restrain, correct, or abate any violation of this title, and in the event that legal action is brought by the city, reasonable attorney's fees and court costs shall be awarded to the city and shall constitute a debt owing by the violator to the city. (Ord. 59 §14, 1971).

Chapter 21.24

R-1 ONE-FAMILY DWELLING ZONE

Sections:

- 21.24.010 Use of property.
- 21.24.020 Uses prohibited.
- 21.24.030 Property development standards.

21.24.010 Use of property. Except as in this title specifically provided, no building or land shall be used or occupied for, and no building shall be erected, constructed, established, altered, enlarged, maintained, moved into or within an R-1 zone which is to be used or occupied for any other purpose than as follows:

(1) ONE-FAMILY DWELLING. A garage or carport shall be a part of the dwelling or attached for common appearance and compatibility with existing structure or attached by roof or breezeway and shall always contain space for not less than two, nor more than four, automobiles. Except for the dwelling, there shall be no other unattached buildings on an R-1 residential lot. Enclosures for the housing of necessary pool, refrigeration and other such operational equipment may be approved by the planning commission. Notwithstanding the setback requirements contained within this title, any carport existing prior to the effective date of the ordinance codified in this title may have installed thereon a door to enclose the same, regardless of whether or not the same meets the minimum setback requirements for a garage facing a street, but the setback shall be not less than twenty feet;

(2) CONDITIONAL USE PERMIT. Conditional use permits may be granted by the planning commission for the following:

(A) Agriculture, flower and vegetable gardening, nurseries and greenhouses for the purpose of propagating and cultivating; provided that no business shall be carried on

upon the premises, and no obnoxious fertilizer or soil renovation materials shall be stored on the premises,

(B) Recreational facilities such as country clubs, golf courses along with the incidental limited commercial uses which are commonly associated with and directly related to the primary permitted uses,

(C) Large scale residential developments, planned to allow cluster housing and more usable open space may be permitted on sites of not less than nine acres of land, and shall be approved by both the planning commission and the city council by conditional use permit. The land shall be developed as an integrated unit conforming to density and all other property development standards except that lot area, lot dimensions and yards may be modified to allow cluster housing, provided that the overall development equals the general quality of development in this zone and each proposal is not considered detrimental to single-family residential developments in the areas. As used in this title, density is determined by net area and all open space must be insured on a permanent and a well-maintained basis. (Ord. 32.6 §1, 1971; Ord. 32 §4.01 (A), 1967).

21.24.020 Uses prohibited. Except as specifically authorized in this chapter, all other uses are specifically prohibited in the R-1 zone. It is also specifically prohibited for any person to use, ride, drive, herd, keep or permit the keeping of or maintenance of any hogs, goats, sheep, donkeys, horses, cattle or wild animals of any type whatsoever, or rabbits, chickens, pigeons or other fowl; provided, however, that horses or cattle may be authorized by special conditional use permit by the city council under special and unusual conditions, such as, but not limited to, sporting events and farming requirements. The permit may be made conditional upon satisfactory compliance with appropriate requirements to protect the public health, safety and welfare. (Ord. 32 §4.01 (B), 1967).

21.24.030 Property development standards. The following property development standards shall apply to all land and buildings in the R-1 zones except that any lot shown on an official subdivision map duly approved and recorded, or any lot for which a bona fide deed has been duly recorded prior to July 14, 1967, the date of this city's incorporation, may be used as a building site after review and approval by the architectural committee:

(1) LOT AREA. Each lot shall have a minimum lot area of twelve thousand square feet;

(2) LOT DIMENSIONS AND SETBACK. All lots hereafter created shall comply with the following minimum standards:

(A) Each R-1 lot shall have a minimum width of one hundred feet, a minimum depth of one hundred feet, a minimum front yard setback of twenty feet, a minimum rear yard setback of ten feet, a minimum side yard setback of eight feet on each side, and a minimum setback of fifteen feet on the non-address or longest street side, if on a corner lot, or twenty feet on each street side if on a reversed corner lot,

(B) Each lot less than ninety feet in width preexisting September 3, 1972, shall have a minimum front yard setback of twenty feet, a rear yard setback of ten feet, a minimum setback on both sides of twelve feet with not less than five feet on one side and a minimum setback of fifteen feet on the long street side, if a corner lot,

(C) Whenever an R-1 lot is irregularly shaped and is located on a curve or cul-de-sac street, the minimum width and/or depth may be, upon specific approval by the planning commission or city council, adjusted to the approximate average width or depth. This subparagraph shall in no way modify the setback requirements or minimum lot area requirements for the lots;

(3) DENSITY. There shall be a minimum of twelve thousand square feet of lot area for each dwelling unit in an R-1 zone. There shall be not more than one dwelling unit on any one lot unless otherwise authorized by this title;

(4) BUILDING HEIGHT. Buildings and structures erected in this zone shall have a height not greater than fifteen feet and shall not exceed more than one story in height except as otherwise provided in this title;

(5) NEW DWELLING SIZE. (A) In existing subdivisions, the building area of each new dwelling erected after September 3, 1972, shall not be less than the average building area of the then existing dwellings in the same block frontage; or if there are no other dwellings in the same block, then as in the nearest block frontage with existing dwellings, in the same subdivision; provided however, that in no instance shall the minimum building area be required to exceed two thousand square feet,

(B) In new subdivisions and in unsubdivided areas of the R-1 zone the minimum building area shall be two thousand square feet. (Ord.82 §3,1972: Ord.79 §2, 1972: Ord. 32.9 §1, 1971; Ord. 32 §4.01 (C), 1967).

Chapter 21.26

HIGHWAY ZONE

Sections:

- 20.26.010 Generally.
- 21.26.020 Uses permitted by conditional use permit.
- 21.26.030 Uses prohibited.
- 21.26.040 Property development standards.

21.26.010 Generally. The H-W zone is intended to provide for the development of hotels, resort hotels, professional buildings, apartments and similar permanent and unit housing, special planned residential areas, and limited commercial uses directly related to hotels or resort hotels as well as general commercial usage. (Ord. 79 §3 (part), 1972).

21.26.020 Uses permitted by conditional use permit. The following uses may be permitted subject to approval by a conditional use permit:

(a) Hotels and resort hotels, including incidental or accessory commercial uses operated primarily for the convenience of the hotels' guests in conformance with the following standards.

(1) There shall be no street entrances directly to such commercial uses,

(2) Such total commercial uses shall occupy not more than twenty percent of the gross floor area of the hotel building,

(3) All signs shall be for the hotel use only, the signs may state that a restaurant or the commercial facility is available,

(4) Any restaurant or other commercial use shall be designed as an integral part of the hotel structure;

(b) Single family residential planned units developed under the development standards of the R-1 zone;

(c) Professional buildings which may include offices for doctors, dentists, chiropractors, optometrists, pharmacies, medical and dental laboratories, secretarial and clerical services, architects, law offices, engineering, community planning and other administrative or professional offices;

(d) Apartments, apartment buildings and apartment hotels;

(e) Planned and residential developments, condominiums, cooperatives and the like;

(f) Country clubs, golf courses and recreational

facilities;

- (g) Churches;
- (h) Civic uses and community center buildings;
- (i) Convention centers;
- (j) Private nonprofit clubs and lodge halls;
- (k) Museums, art galleries and libraries;
- (l) Retail business establishments, stores, banks, and financial institutions, administrative offices, professional offices, insurance offices, barber and beauty shops, restaurants, florists, interior decoration and home accessory shops, markets, grocery and fruit stores, meat and delicatessen stores (provided no poultry or rabbits are kept or slaughtered on the premises), liquor stores, clothing stores, jewelry stores, cocktail lounges, plant nurseries (retail), radio appliances, sales and repair, travel agencies and variety stores;
- (m) Clinics;
- (n) Public utility installations and facilities, except for transmission and for utility offices;
- (o) Motion picture theaters; radio and television studios;
- (p) Commercial recreation facilities and sports arenas;
- (q) Service stations subject to the minimum standards and requirements set forth in Section 21.32.020. (Ord. 79 §3 (part), 1972).

21.26.030 Uses prohibited. The following uses are prohibited in the H-W zone:

- (a) Commercial, except as otherwise permitted;
- (b) Industrial;
- (c) Hospitals;
- (d) Mortuaries;
- (e) Mobilehome or trailer parks;
- (f) Motels, the use of the name "motel" in a sign or advertising;
- (g) Trailer sales or rental establishments;
- (h) Auction sales;
- (i) Used car establishments;
- (j) Motorcycles, motor bike or motor scooter establishments;
- (k) Auto wrecking or auto painting, body and fender repair establishments;
- (l) Junkyards;
- (m) Secondhand stores;
- (n) Chain wash racks;
- (o) Tire recapping;
- (p) Wayside stands or drive-in restaurants or any other similar type of food or beverage business whose patronage consists, in whole or in part, of motorists who are served while remaining in their vehicles;

- (q) Outdoor advertising signs of products or services not on the premises;
- (r) Commercial storage or warehouse facilities;
- (s) Psychics;
- (t) Any manufacturing use;
- (u) Sale or display of any goods, wares or merchandise stored or maintained other than in an enclosed building, except nurseries may display nursery stock and garden supplies, if set back at least twenty-five feet;
- (v) Any enterprise or use which produces, causes or emits any dust, gas, smoke, glare, noise, fumes, odors or vibrations or which are or may be detrimental to the safety, welfare, health, peace and morals of the city and its residents;
- (w) All other uses not specifically allowed.
(Ord. 79 §3 (part), 1972).

21.26.040 Property development standards. The following development standards shall apply to all land and buildings in the H-W zone and lots hereafter created shall comply with the following minimum standards. Lots now held under separate ownership or of record, shall not be reduced below these standards:

- (a) DIMENSIONS. Lots shall have a minimum width of two hundred feet and a minimum depth of three hundred feet.
- (b) DENSITY. There shall be a minimum of six thousand square feet of land area for each dwelling unit in a one or two story apartment complex. No lot shall have more than thirty-five percent of its net area covered with buildings or structures.
- (c) SETBACKS. The building setback from all existing or contemplated streets, highways or service roads shall be not less than fifty feet. The side yard building setback from an inside lot line shall be not less than fifteen feet. The rear yard building setback shall not be less than twenty feet. All buildings that exceed fifteen feet in height shall be required to have a fifty foot setback from any existing adjacent single story developments. If the H-W zoned property abuts R-1 zoned property, all structures within one hundred feet of the R-1 zone boundary shall have a height of not more than fifteen feet and shall not exceed one story in height.
- (d) FLOOR AREA. Each dwelling unit within an apartment complex shall have a minimum of one thousand square feet of living area.
- (e) BUILDING HEIGHT. Buildings and structures erected in this zone shall have a height not greater than thirty feet.
- (f) DISTANCE BETWEEN BUILDINGS. Distance between buildings shall not be less than fifteen feet.

(g) PERIMETER WALLS. Where a developed H-W lot abuts an R-1 zone, a masonry wall not less than five feet nor more than six feet in height shall be erected and screen landscaping seven feet in height shall be installed and maintained between such H-W and R-1 zones. Approval of the planning commission shall be obtained prior to start of construction of such walls or planting of such landscaping.

(h) PARKING AND LANDSCAPING. Adequate off-street automobile parking and landscaping shall be provided for the particular use of the property developments that will meet with the approval of the planning commission.

(i) COMMERCIAL USES. All commercial uses shall be allowed only within a commercial development having a minimum gross area of ten acres, except that barber and beauty shops, florists, clothing stores, jewelry stores, cocktail lounges and travel agencies may be included as incidentals and accessory uses of a resort hotel. (Ord. 79 §3 (part), 1972).

Chapter 21.28

R-3 APARTMENTS, HOTELS AND PROFESSIONAL
BUILDINGS ZONE

Sections:

- 21.28.010 Generally.
- 21.28.020 Uses permitted.
- 21.28.030 Uses permitted by conditional use permits.
- 21.28.040 Uses prohibited.
- 21.28.050 Property development standards.

21.28.010 Generally. The R-3 zone is intended to provide for the development of apartments, hotels and similar permanent and unit housing, special planned residential area, limited commercial uses directly related to hotel or housing facilities, and for professional buildings. (Ord. 32.9 §2 (part), 1971: Ord. 32 §4.02 (part), 1967).

21.28.020 Uses permitted. The following uses are permitted in the R-3 zone:

(1) Hotels and resort hotels, including incidental or accessory commercial uses operated primarily for the convenience of the hotel guests in conformance with the following standards:

(A) There shall be no street entrances directly to such commercial uses,

(B) Such total commercial uses shall occupy not more than twenty percent of the gross floor area of the hotel building,

(C) All signs shall be for the hotel use only; the signs may state that a restaurant on the commercial facility is available,

(D) Any restaurants or other commercial use shall be designed as an integral part of the hotel;

(2) Professional buildings which may include offices for doctors, dentists, chiropractors, optometrists, pharmacies, medical and dental laboratories, secretarial and clerical services, law offices, architects, engineering, community planning and other administrative and professional offices. (Ord. 32.9 §2 (part), 1971: Ord. 32 §4.02 (A), 1967).

21.28.030 Uses permitted by conditional use permits.
The following uses may be permitted subject to approval by a conditional use permit:

- (1) Apartment houses, multiple-dwelling buildings, apartment hotels;
- (2) Private nonprofit clubs and lodge halls;
- (3) Planned residential developments, condominiums, cooperatives and the like;
- (4) Churches;
- (5) Convention centers;
- (6) Country clubs and golf courses;
- (7) Museums, art galleries and libraries;
- (8) Private education institutions;
- (9) Multiple story buildings;
- (10) Civic uses and community center buildings. (Ord. 32.9 §2 (part), 1971: Ord. 32 §4.02 (B), 1967).

21.28.040 Uses prohibited. The following uses are prohibited in the R-3 zone:

- (1) Commercial, except those incidental to a hotel;
- (2) Industrial;
- (3) Hospitals;
- (4) Mortuaries;
- (5) Trailer parks;
- (6) Motels or the use of the name "motel" in a sign or advertising;
- (7) All other uses not specifically allowed herein-above. (Ord. 32 §4.02 (C), 1967).

21.28.050 Property development standards. The following property development standards shall apply to all land and buildings in the R-3 zone and lots hereafter created shall comply with the following minimum standards. Lots now held under separate ownership or of record, shall not be reduced below these standards:

- (1) DIMENSIONS. Lots shall have a minimum width of two hundred feet and minimum depth of two hundred fifty feet;
- (2) DENSITY. There shall be a minimum of four thousand square feet of lot area for each dwelling unit in a one or two story apartment or residential complex. The proportionate lot area in a higher rise complex shall be reviewed by the planning commission and the recommendation be forwarded to the city council for their final determination on each application. No lot shall have more than fifty percent of its net area covered with buildings or structures. The maximum ratio of floor area to lot area shall not be greater than two to one. For purposes of this section, building area shall exclude:
 - (A) Basement area,
 - (B) One-half of the area devoted to parking that is covered by a roof structure,

(C) Covered porches,

(D) Patios or arbors that are attached to the main building and are completely open on at least one side;

(3) SETBACKS. The building setback from all existing or contemplated streets, highways or service roads shall be not less than twenty-five feet. The side yard building setback from an inside lot line shall be not less than ten feet. The rear yard building setback shall be not less than twenty feet. All buildings that exceed fifteen feet in height shall be required to have a twenty-five foot setback from any existing adjacent single story developments. If the R-3 zoned property abuts R-1 zoned property, all structures within one hundred feet of the R-1 zone boundary line shall not have a height of greater than fifteen feet and shall not exceed more than one story;

(4) BUILDING HEIGHT. Buildings and structures erected in this zone shall have a height not greater than thirty feet, except as may otherwise be provided for high rise buildings under a conditional use permit;

(5) DISTANCE BETWEEN BUILDINGS. Distance between buildings shall not be less than fifteen feet;

(6) WALLS. Where a developed R-3 lot abuts an R-1 zone, a masonry wall not less than five feet or more than six feet in height and screen landscaping seven feet in height shall be erected and maintained between such R-3 and R-1 zones;

(7) PARKING AND LANDSCAPING. Adequate off-street automobile parking and landscaping shall be provided for the particular use of the property developments that will meet with the approval of the planning commission. (Ord. 32.9 §3, 1971; Ord. 32 §4.02 (D), 1967).

Chapter 21.32

C-1 GENERAL COMMERCIAL ZONE

Sections:

- 21.32.010 Use of property.
- 21.32.020 Uses by conditional use permit.
- 21.32.030 Uses prohibited.
- 21.32.040 Lot dimensions.
- 21.32.050 Walls.
- 21.32.060 Plan, design and parking.

21.32.010 Use of property. The following uses shall be permitted in the C-1 commercial zone: Retail business establishments, stores, banks and financial institutions,

administrative offices, professional offices, real estate and insurance offices, barber and beauty shops, local trade services, restaurants, clothes cleaning and pressing establishments, tailor shops (retail only), florists, interior decoration and home accessory shops, markets, grocery and fruit stores, meat and delicatessen stores (provided no poultry or rabbits are kept or slaughtered on the premises), liquor stores, clothing stores, jewelry stores, cocktail lounges, plant nurseries (retail), radio appliances, sales and repair, travel agencies and variety stores. (Ord. 32 §4.03 (A), 1967).

21.32.020 Uses by conditional use permit. The following uses are declared to possess characteristics of unique and special form as to make impractical an advance classification of "permitted" or "prohibited" use in C-1 zones. The location, development and operation of each and all matters relating thereto are therefore declared to be subject to a conditional use permit and the burden of proof shall be upon the applicant to show justification for each such use:

- (1) Any residence or R-1 use;
- (2) New car sales and repair service;
- (3) Clinics;
- (4) Public utility installations and facilities, except for transmission and for utility offices;
- (5) Motion picture theatres; radio and television studios;
- (6) Commercial recreation facilities and sports arenas;
- (7) Night clubs and public dance halls;
- (8) Self-service coin-operated clothes washing and cleaning establishments;
- (9) In the event any of the prohibitions of uses set forth in Section 21.32.030 is held to be invalid or inapplicable for any reason whatsoever, then such use shall immediately and automatically be classified hereunder as a condition use, subject to the provisions of this paragraph, as an interim emergency zoning classification;
- (10) Service stations, subject to the following minimum standards and requirements. Other requirements may be added as are required to protect the public health, safety and welfare:

(A) Lot area not less than twenty-two thousand five hundred square feet with no street side less than one hundred fifty feet,

(B) Setback of any building not less than fifteen feet from any property line,

(C) Setback of all gasoline pumps not less than twenty-five feet from any property line,

(D) No vehicle shall be parked on premises other than those of business invitees, vehicles being serviced

for customers, vehicles of employees and service vehicles of the station operator. All vehicles waiting for service, parked or under the control of any employee, shall be on private property and shall not be on any required landscape strip. No trucks or commercial vehicles may be parked on the premises between ten p.m. and six a.m. other than in the enclosed service station building,

(E) Sales and services shall be limited to the sale of motor fuels and supplying goods and services generally required in the operation and maintenance of automotive vehicles and the fulfilling of motorists needs. They may include the sale of petroleum products; sale and servicing of tires, batteries, automotive accessories and replacement items; washing and lubricating services; the performance of minor automotive maintenance and repair; and the supplying of the incidental customer services and products. Major automotive repair, washing and lubricating operations shall be within the service station building. No vehicles may be parked on the premises and offered for sale, lease or rent. No merchandise may be displayed outside of the service station building or pump island,

(F) Accessways. Each developed site shall not have more than two accessways to any one street. Accessways shall be a minimum of ten feet from adjoining residential property lines. No driveway shall encroach into the curve of a street corner,

(G) Signs. Service station signs shall be governed as is provided in Ordinance No. 24*,

(H) Lighting. All outside lighting shall be so arranged and shielded as to prevent any glare or reflection and any nuisance or hazardous interference of any kind on adjoining streets or property,

(I) Landscaping. Five feet wide planters shall be located and maintained adjacent to every street frontage except for curb cut openings. One hundred fifty square feet of planting area shall be located and maintained at the intersection of two property lines at a street corner. Five feet wide planters shall be located and maintained along the walls of the interior property lines from street line to a distance equal to the front building line and for this purpose, canopies and other such structural appurtenances shall not be considered the front building line. Thirty square feet of planting area shall be located and maintained along the building facades fronting on streets. All planting areas shall have permanent irrigation systems, be planted with plantings that will not achieve a height greater than thirty inches (except trees) and shall not be thorny or spiked and shall not extend over adjoining areas.

* Ordinance 24 was repealed by Ords. 34 and 36.

The planting areas shall be separated from adjacent asphalt or concrete paving by a minimum six inch high concrete curb wall. All areas of a service station lot not covered by buildings, walks or planter areas shall be surfaced adequately with asphalt or concrete paving,

(J) Other requirements. All utilities services shall be installed underground to the buildings. No service station shall be operated in a self-service manner. All outside trash, garbage, refuse and storage areas shall be connected to the main structure and shall be enclosed on at least three sides by a five foot wall constructed pursuant to building code requirements. Provisions for adequate vehicular access to and from such areas for collection of trash and garbage shall be provided. No sale, lease or rental of items, such as soda pop, cigarettes, (except in vending machines within the building), trailers, trucks, peat moss, toys or anything not clearly incidental to the automotive industry shall be permitted. (Ord. 32.11 §2, 1971; Ord. 32 §4.03 (B), 1967).

21.32.030 Uses prohibited. The following uses are specifically excluded from the C-1 zone:

- Trailer sales or rental establishments;
- Auction sales;
- Used car establishments;
- Motorcycles, motor bike or motor scooter establishments;
- Auto wrecking or auto painting, body and fender repair establishments;
- Junkyards;
- Second-hand stores;
- Chain wash racks;
- Tire recapping;
- Wayside stands or drive-in restaurants or any other similar type of food or beverage business whose patronage consists, in whole or in part, of motorists who are served while remaining in their vehicles;
- Hospitals;
- Outdoor advertising signs of products or services not on the premises;
- Commercial storage or warehouse facilities;
- Mortuaries;
- Psychics;
- Trailer coach camps or parks;
- Any manufacturing use;
- The sale or display of any goods, wares or merchandise stored or maintained other than in an enclosed building, except nurseries may display nursery stock and garden supplies, if set back at least twenty-five feet;
- Any enterprise or use which produces, causes or emits any dust, gas, smoke, glare, noise, fumes, odors or

vibrations or which are or may be detrimental to the safety, welfare, health, peace and morals of the city and its residents. (Ord. 32.4 §1, 1970: Ord. 32 §4.03 (C), 1967).

21.32.040 Lot dimensions. Each C-1 lot shall have a minimum width of two hundred feet and a minimum depth of two hundred fifty feet. Buildings and structures shall have a height not greater than twenty feet. (Ord. 32 §4.03 (D), 1967).

21.32.050 Walls. Where a C-1 development abuts an R-1 zone, a masonry wall six feet in height shall be provided on the R-1 zone boundary. (Ord. 32 §4.03 (E), 1967).

21.32.060 Plan, design and parking. The plan of developments, layout, design of buildings, adequacy of parking and landscaping shall be subject to the approval of the planning commission. (Ord. 32 §4.03 (F), 1967).

Chapter 21.36

W-1 WATERCOURSE AREA ZONE

Sections:

21.36.010 Structures prohibited.

21.36.020 Uses permitted with special permit.

21.36.010 Structures prohibited. Areas zoned W-1 are considered subject to periodical flooding and other hazards. Therefore, there shall be no structures or buildings permitted therein. (Ord. 32 §4.04 (part), 1967).

21.36.020 Uses permitted with special permit. Subject to special permit by the planning commission, the following uses may be authorized: Golf courses and farming when building is approved by a qualified engineering report on absence of water hazard to be obtained by applicant. (Ord. 32 §4.04 (part), 1967).

Chapter 21.40

H-1 HILLSIDE AREA ZONE

Sections:

21.40.010 Uses and structures permitted only with permit.

21.40.010 Uses and structures permitted only with permit. Areas zoned H-1 are considered to contain conditions and features which require the imposition of special zoning controls in order to protect the public health, safety and general welfare and to provide for orderly and aesthetically appealing development. Therefore, no structures, buildings or improvements are permitted therein except by use permit approved by the planning commission and city council.

In granting a use permit the planning commission and city council may require conditions which in their opinion are necessary to protect the public health, safety and general welfare. (Ord. 32.7 §2, 1971: Ord. 32 §4.06, 1967).

Chapter 21.44

PROCEDURE FOR VARIANCE AND USE PERMITS

Sections:

21.44.010 Granting.

21.44.020 Petitions.

21.44.030 Transferable.

21.44.010 Granting. Subject to the provisions of this title and in harmony with the general purpose and intent thereof, the planning commission and city council may grant a variance to any provision of this chapter and as a condition thereof may impose such reasonable conditions or restrictions as is deemed appropriate or necessary in any specific case and may grant use permits as provided hereinafter. (Ord. 32.10 §1 (part), 1971: Ord. 32 §5.01 (A), 1967).

21.44.020 Petitions. Any person, firm or corporation, or any officer, department or board of a public corporation, or political subdivision of the state of California aggrieved or affected by any provision of this title may petition the

APPENDIX II

FLORAL LIST OF THE ENTIRE SURVEYED AREAS

Families are arranged in the order found in Dr. Jaeger's DESERT WILD FLOWERS. Large letters following scientific plant name refers to the particular area in which the plant is found.

Loranthaceae - Mistletoe Family

Mistletoe	<u>Phoradendron californicum</u>	G H I
-----------	----------------------------------	-------

Polygonaceae - Buckwheat Family

Desert Buckwheat	<u>Eriogonum inflatum deflatum</u>	F G
Big Trumpet	<u>Eriogonum inflatum</u>	C G I
Little Trumpet	<u>Eriogonum trichopes</u>	D F G I
Thomas Buckwheat	<u>Eriogonum Thomasii</u>	D F G H I
Yellow Turbans	<u>Eriogonum pusillum</u>	D F G H I
Skeleton Weed	<u>Cryptantha rigida</u>	D F G I
Brittle Spine Flower	<u>Chorizanthe brevicornu</u>	D F I

Chenopodiaceae - Pigweed Family

Inkweed	<u>Suaeda Torreyana ramosissima</u>	H
Long-leaved Saltbush	<u>Atriplex canescens linearis</u>	A C H
Cattle Spinach	<u>Atriplex polycarpa</u>	A C H I
Quailbrush	<u>Atriplex lentiformis</u>	H (western part)

Amaranthaceae - Amaranth Family

Honey Sweet	<u>Tidestroemia oblongifolia</u>	D F
-------------	----------------------------------	-----

Nyctaginaceae - Four-o'clock Family

Sand Verbena	<u>Abronia villosa</u>	A C E H I
--------------	------------------------	-----------

Leguminosaea - Pea Family

Blue Palo Verde	<u>Cercidium floridum</u>	A	C	D	E	G	I	J
Mesquite	<u>Prosopis juliflora Torreyana</u>	A	D	G	H	I		
Catclaw	<u>Acacia Greggii</u>	C	D	F	G	I	J	
Bird of Paradise	<u>Hoffmannseggia microphylla</u>	D	F	G	I	J		
White Ratany	<u>Krameria Grayii</u>	D	F	G	I			
Indigo Bush	<u>Dalea Schottii</u>	C	D	E	F	G	I	J
Smoke Tree	<u>Dalea spinosa</u>	C	D	F	G	I		

Euphorbiaceae - Spurge Family

Euphorbia or Sand Mat	<u>Euphorbia polycarpa</u>	C	D	G	I			
--------------------------	----------------------------	---	---	---	---	--	--	--

Zygophyllaceae - Caltrop Family

Creosote	<u>Larrea divaricata</u>	A	B	C	D	E	F	G
		H	I	J				

Malvaceae - Mallow Family

Five Spot	<u>Malvastrum rotundifolium</u>	D	E	F	G	I		
White Mallow	<u>Malvastrum exile</u>	D	E					
Apricot Mallow	<u>Sphaeralcea ambigua</u>	D	E	F	G	I		

Loasaceae - Loasa Family

Sandpaper Bush	<u>Petalonxy Thurberi</u>	C	D	E	F	G		
Giant Blazing Star	<u>Mentzelia involucrata</u>	F	J					

Cactaceae - Cactus Family

Beavertail	<u>Opuntia basilaris</u>	D	F	H	I	J		
Deer Horn Cactus	<u>Opuntia acanthocarpa</u>	D	F	I				
Colorado Desert Barrel Cactus	<u>Ferocactus acanthodes</u>	F	I	J				

Primulaceae - Primrose Family

Brown-eyed Primrose	<u>Oenothera clavaeformis</u>	A	C	D	F	G	H	I
Bottle Washer	<u>Oenothera decorticans</u>	D	E	F	G	I		
Sand Dune Primrose	<u>Oenothera deltoides</u>	A	D	E	H			

Asclepiadaceae - Milkweed Family

Climbing Milkweed	<u>Funastrum heterophyllum</u>	D	F	I	J			
Rambling Milkweed	<u>Funastrum hirtellum</u>	D	F	I	J			

Polemoniaceae - Phlox Family

Desert Calico	<u>Langloisia Matthewsii</u>	C	D	E	F	I		
---------------	------------------------------	---	---	---	---	---	--	--

Hydrophyllaceae - Waterleaf Family

Poisonous Phacelia	<u>Phacelia crenulata ambigua</u>	D	F	I	J			
--------------------	-----------------------------------	---	---	---	---	--	--	--

Boraginaceae - Borage Family

Sand Mat	<u>Coldenia plicata</u>	C	H					
Ashen Forget-me-not	<u>Cryptantha costata</u>	A	C	D	E	F	G	I
White-haired Forget-me-not	<u>Cryptantha maritima</u>	A H	C	D	E	F	G	I

Labiatae - Mint Family

Wand Sage	<u>Salvia Vaseyi</u>	D	F	J				
Desert Lavender	<u>Hyptis Emoryi</u>	D	F	G	I			

Acanthaceae - Acanthus Family

Chuparosa, Hummingbird Delight	<u>Beloperone californicum</u>	D	G					
-----------------------------------	--------------------------------	---	---	--	--	--	--	--

Bignoniaceae - Bignonia Family

Desert Willow	<u>Chilopsis linearis</u>	D	G					
---------------	---------------------------	---	---	--	--	--	--	--

Plantaginaceae - Plaintain Family

Pursh Plantain	<u>Plantago Purshii</u>	A	C	D	E	F	G	H
		I	J					

Cucurbitaceae - Gourd Family

Coyote Melon	<u>Cucurbita palmata</u>	F						
--------------	--------------------------	---	--	--	--	--	--	--

Compositae - Sunflower Family

Encelia, Brittle Bush	<u>Encelia farinosa</u>	D	F	I	J			
Burro Bush	<u>Franeria dumosa</u>	D	E	F	G	H	I	J
Cheese Bush	<u>Hymenoclea salsola</u>	C	D	E	F	G	I	J
Desert Sweet	<u>Bebbia juncea</u>	D	I	J				
Dicoria	<u>Dicoria canescens</u>	D						
Spanish Needle	<u>Palafoxia linearis</u>	E	H	I				
Pebble Pincushion	<u>Chaenactis carphoclinia</u>	E	F	H	I			
Desert Gold	<u>Geraea canescens</u>	G	J					

FAUNAL LIST FOR THE ENTIRE SURVEYED AREAS

REPTILIAN FAUNA

Lizards - Iguanidae Family

Santa Rosa Chuckawalla	<u>Sauromalus obesus</u> variety	D	F	I	J				
Desert Iguana	<u>Dipsosaurus d. dorsalis</u>	C	D	E	F	G	H	I	
Zebra-tailed or Gridiron Lizard	<u>Callisaurus d. dranonoides</u>	C	D	E	F	G	I	J	
Flat-nosed Horned Lizard	<u>Phrynosoma platyrhinos</u> <u>calidarum</u>	C	D	E	F	G	I		
* McCall's Horned Lizard	<u>Phrynosoma m'callii</u>	H							
Stansbury's Uta	<u>Uta stansburiana</u>	A	B	C	D	E	F	G	
		H	I	J					
Long-tailed Uta	<u>Uta gracilis</u>	C	E	G					
Leopard Lizard	<u>Gambelia w. wislizeni</u>	E							
Giant Scaley Lizard	<u>Sceloporus magister</u>	C	G						
* Coachella Valley Sand Dune Lizard	<u>Uma inornata</u>	H							
Mearn's Cliff Lizard	<u>Petrosaurus mearnsi</u>	D	I	J					

Geckos - Gekkonidae Family

Banded Gecko	<u>Coleonyx variegatus</u>	C	D	E	F	G	H		
Abbott Gecko	<u>Coleonyx abbotti</u>	D	F	I	J				

* Endangered species

Night Lizards - Xantusiidae Family

Henshaw Spotted Night Lizard	<u>Xantusia henshawi</u>	D	F	I	J
---------------------------------	--------------------------	---	---	---	---

Whip-tails - Teiidae Family

Tiger Whip-tail Lizard	<u>Cnemidophorus t. tigris</u>	A	B	C	D	E	F	G
		H	I					

Snakes

Rattlesnakes - Crotalidae Family

Desert Mountain Speckl- ed Rattler	<u>Crotalus mitchelli pyrrhus</u>	D	F	I	J
Red Diamond Rattler	<u>Crotalus ruber</u>	F	G	J	
Western Diamond back Rattler	<u>Crotalus atrox</u>	F	G	I	H

Non-poisonous Snakes - Colubridae Family

Bull Snake	<u>Pituophis catenifer</u>	D	F	G	I			
Red Racer	<u>Masticophis flagellum picea</u>	A	C	D	E	F	G	H
		I						
Faded Snake	<u>Arizona elegans</u>	A	C	D	E	H		
Burrowing Snake	<u>Chionactis annulatus</u>	A	C	D	E	F	G	H
Long-nosed Snake	<u>Rhinocheilus lecontei</u>	C						

Rear-fanged Night Snake - Dipsamorphidae

Van Denburgh's Lyre Snake	<u>Trimorphodon vandenburghi</u>	D	F	I	J
------------------------------	----------------------------------	---	---	---	---

MAMMALIAN FAUNA

Coyote	<u>Canis latrans</u>	A B C D E F G H I J
Bobcat	<u>rufus</u>	C F G J
Desert Gray Fox	<u>Urocyon cinereoargentatus</u>	C F G H
Striped Skunk	<u>Mephitis mephitis estor</u>	B C
Ring-tailed Cat	<u>Bassariscus astutus</u>	D F I J
Round-tailed Ground Squirrel	<u>Citellus tereticaudus</u>	A B C D E F G H I
Antelope Ground Squirrel	<u>Citellus leucurus</u>	C D E F I J
Beechey Ground Squirrel	<u>Citellus beecheyi</u>	A D E
Pocket Gopher	<u>Thomomys bottae variety</u>	A C D G I
Desert Pack Rat	<u>Neotoma lepida</u>	A C D F G I
Merriam Kangaroo Rat	<u>Dipodomys merriami</u>	A C D E G H I
Desert Kangaroo Rat	<u>Dipodomys deserti</u>	I
Deer Mouse	<u>Peromyscus maniculatus</u>	I J
Cactus Mouse	<u>Peromyscus eremicus</u>	D F I J
Canyon Mouse	<u>Peromyscus crinitis</u>	D F I J
Little Pocket Mouse	<u>Perognathus longimembris</u>	C G I
Long-tailed Pocket Mouse	<u>Perognathus formosus</u>	I
Short-eared Pocket Mouse	<u>Perognathus fallax</u>	J
Spiny Pocket Mouse	<u>Perognathus spinatus</u>	I J
Desert Pocket Mouse	<u>Perognathus penicillatus</u>	G I
Jack Rabbit	<u>Lepus californicus</u>	A B C E G H I
Cottontail	<u>silvilagus auduboni</u>	A B G H I

Desert Bighorns

Ovis canadensis nelsoni

J possibly I

Canyon Bat

Pipistrellus hesperus

A B C D E F G
H I J

Pallid Bat

Antrozous pallidus

A D F I J

Big Brown Bat

Eptesicus fuscus

I J

Mexican Free-tail Bat

Tardarida brasiliense

I J

BIRD LIST FOR THE ENTIRE SURVEYED AREAS

Families are arranged according to Roger Tory Peterson's FIELD GUIDE TO WESTERN BIRDS.

Phasianidae - Quail, Pheasant Family

Gambel or Desert Quail	<u>Lophortyx gambeli</u>	A B C D E F G H I J
------------------------	--------------------------	------------------------

Accipitridae - Hawk and Eagle Family

Red-tailed Hawk	<u>Buteo jamaicensis</u>	A J
-----------------	--------------------------	-----

Falconidae - Falcons

Grasshopper Falcon	<u>Falco sparverius</u>	A C D E G
Pigeon Falcon	<u>Falco columbarius</u>	D I J

Columbidae - Doves

White-winged Dove	<u>Melopelia asiatica mearnsi</u>	A B C H
Mourning Dove	<u>Zenaidura macroura</u>	A B C D E F G H I
Mexican Ground Dove	<u>Columbigallina passerina</u>	A B C D E F G H I
Spotted-necked Dove	<u>Streptopelia chinensis</u>	A B C D

Cuculidae - Roadrunner, Paisano, Chaparral Cock

Roadrunner	<u>Geococcyx californianus</u>	A B C D E F G H I J
------------	--------------------------------	------------------------

Caprimulgidae - Nighthawks, Poorwills

Texas Nighthawk	<u>Chordeiles texensis</u>	C E G H
-----------------	----------------------------	---------

Trochilidae - Hummingbirds

Anna Hummingbird	<u>Calypte anna</u>	A B C D E G I H J Common in Valley
Costa Hummingbird	<u>Calypte costae</u>	Spring migrant in Valley

Apodidae - Swifts

White-throated Swift	<u>Aeronautes saxatilis</u>	D I J Migrates through Valley in March
Vaux's Swift	<u>Chaetura vauxi</u>	H - Migrates through Coachella Valley in March
Black Swift	<u>Cypseloides niger</u>	H - Spring migrant Coachella Valley in March

Tyrannidae - Kingbirds, Flycatchers, Phoebes

Say Phoebe	<u>Sayornis sayi</u>	A D E F G H I
Western Arkansas Kingbird	<u>Tyrannus tyrannus</u>	A B G H
Ash-throated Flycatcher	<u>Myiarchus cinerascens</u>	A H
Scissor-tailed Flycatcher	<u>Muscivorus forficata</u>	A

Hirundinidae - Swallows

Tree Swallow	<u>Iridoprocne bicolor</u>	Common Spring migrant in C.V.
Violet-Green Swallow	<u>Tachycineta thalassina</u>	Common Spring migrant in C.V.
Cliff Swallow	<u>Petrochelidon pyrrhonota</u>	Common Spring migrant in C.V.
Rough-winged Swallow	<u>Stelgidopteryx ruficollis</u>	Rare Spring migrant in Coachella Valley
Barn Swallow	<u>Hirundo rustica</u>	Common Spring and Fall migrant in C.V.

Corvidae - Crows, Ravens

Common Raven	<u>Corvus corax</u>	D G I
--------------	---------------------	-------

Paridae - Verdins, Titmice, Bushtits

Verdin	<u>Auriparus flaviceps</u>	A C D F G H I
--------	----------------------------	---------------

Troglodytidae - Wrens

Cactus Wren	<u>Camplyorhynchus</u> <u>brunneicapillus</u>	A C H
Rock Wren	<u>Salpinctus obsoletus</u>	D F I J

Mimidae - Mockingbirds, Thrashers

Mockingbird	<u>Mimus polyglottos</u>	A B C D E G H I
Leconte Thrasher	<u>Toxostoma lecontei</u>	H

Turdidae - Thrushes, Robin, Bluebirds

Swainson Thrush	<u>Hylocichla ustulata</u>	Spring migrant (May) in C.V.
Gray-cheeked Thrush	<u>Hylocichla minima</u>	Rare Spring migrant in C.V.

Sylvidae - Gnatcatchers, Kinglets

Black-tailed Gnatcatcher	<u>Polioptila melanura</u>	C D F G H I
Ruby-crowned Kinglet	<u>Regulus calendulus</u>	Common Spring migrant in C.V.

Laniidae - Shrikes

White-rumped Shrike	<u>Lanius ludovicianus</u>	C G I
---------------------	----------------------------	-------

Ptilogonatidae - Silky Flycatchers

Phainopepla	<u>Phainopepla nitens</u>	C G H I Common in Winter
-------------	---------------------------	-----------------------------

Vireonidae - Vireos

Bell Vireo	<u>Vireo bellii</u>	G - Spring migrant through C.V.
------------	---------------------	------------------------------------

Parulidae - Wood Warblers

Audubon Warbler	<u>Dendroica auduboni</u>	A B C D G Very common in Winter in C.V.
Palm Warbler	<u>Denroica palmarum</u>	Rare Spring migrant
Wilson's Warbler	<u>Wilsonia pusilla</u>	Common Spring migrant through C.V.

Icteridae - Orioles, Blackbirds

Scott Oriole	<u>Icterus parisorum</u>	G I
Hooded Oriole	<u>Icterus cuculatus</u>	Spring migrant in Coachella Valley
Brewer Blackbird	<u>Euphagus cyanocephalus</u>	Common on lawns
Rusty Blackbird	<u>Euphagus carolina</u>	Common on lawns in Summer in C.V.

Thraupidae - Tanagers

Western Tanager	<u>Piranga ludoviciana</u>	Common Spring migrant to C.V.
-----------------	----------------------------	----------------------------------

Fringillidae - Finches, Towhees, Sparrows

House Finch, Linnet	<u>Carpodacus mexicanus</u>	A B C D E F G H I J
Abert's Towhee	<u>Pipilo aberti</u>	A H
Field Sparrow	<u>Spizella pusilla</u>	Common in Winter
Gambel's Sparrow	<u>Zonotrichia leucophrys</u> <u>gambelii</u>	Very common Winter resident

U.C. BERKELEY LIBRARIES



C101740792

